

**IN THE UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF MISSISSIPPI
NORTHERN DIVISION**

LATOYA BROWN; et al

PLAINTIFFS

v.

Civ. No. 3:17cv347-WHB-LRA

MADISON COUNTY, MISSISSIPPI; et al

DEFENDANTS

**DEFENDANTS' RESPONSE IN OPPOSITION TO PLAINTIFFS' MOTION TO
EXCLUDE THE REPORT AND TESTIMONY OF WILLIAM R. FUNDERBURK**

Defendants Madison County, Mississippi and Sheriff Randall C. Tucker in his official capacity, and submit this Response in Opposition to the Plaintiffs' Motion to Exclude the Report and Testimony of William R. Funderburk. [Dkt. #306]. In support of this Response, Defendants respectfully submit:

1. As grounds for their Opposition, Defendants adopt the reasons set forth in their separately filed Memorandum in Support of Their Opposition to the Plaintiffs' Motion to Exclude the Report and Testimony of William R. Funderburk.

2. Defendants rely upon the following exhibits in support of their response and brief:

Exhibit 1: Declaration of Willian R. Funderburk, July 30, 2018;

Exhibit 2: Deposition of William R. Funderburk, June 20, 2018;

Exhibit 3: Declaration of Deputy Rylon Thompson, July 30, 2018.

Pursuant to Evidence Rules 104, 401, 402, 403, 406, 702, and 703, and for all the reasons set forth in the Memorandum in Support of this Response filed concurrently, Defendants move the Court to deny Plaintiffs' Motion to Exclude William R. Funderburk.

Respectfully submitted this 30th day of July, 2018.

**MADISON COUNTY, MISSISSIPPI and
SHERIFF RANDALL C. TUCKER, IN
HIS OFFICIAL CAPACITY**

BY: /s/ Russ Nobile
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CERTIFICATE OF SERVICE

I, T. Russell Nobile, hereby certify that I electronically filed the foregoing with the Clerk of Court using the CM/ECF system which will automatically send email notification of such filing to the following:

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So, certified this the 30th day of July, 2018.

/ s/ T. Russell Nobile
T. RUSSELL NOBILE

**IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF MISSISSIPPI
JACKSON DIVISION**

LATOYA BROWN, et al.

PLAINTIFFS

v.

CIVIL ACTION NO. 3:17-cv-347 WHB LRA

MADISON COUNTY, MISSISSIPPI; et al.

DEFENDANTS

DECLARATION OF WILLIAM R. FUNDERBURK

I, William R. Funderburk, make the following declaration based on personal knowledge:

1. I have been retained by the Defendants in the above referenced matter as expert on geography and geographic information systems. I previously submitted a report filed in these proceedings on May 8, 2018. This declaration is a supplement to my prior report.

2. Plaintiffs' contend that I do "not bring any independent expertise to [my] review and evaluation of the geocoded roadblock locations." I submit this declaration in hopes to resolve Plaintiffs' doubts about my independent expertise and concerns about my ground truthing methods. It should be noted that Dr. Ricchetti did not conduct any ground truthing in preparation of his geographic analysis.

3. Over the course of my career, I have personally geocoded millions of locations. I have done this as a professional geographer and academic researcher on a variety of projects from the assignment of coordinate locations to random positions in a marsh, estuary or island using GPS and GIS, to the assignment of coordinates in point-cloud data sets collected through terrestrial LiDAR (Light detection and Ranging). I have performed Lidar collection on islands, buildings, marshes, historical and cultural artifacts of

significance such as lighthouses, cemeteries, trees, and historic spacecraft such as the Saturn 5, Stage 1 booster of the Apollo 19 mission.

4. Plaintiffs question the ground truthing methods I used in my review and whether the facts or data I relied upon are the type reasonably relied upon by experts in my field of expertise. Geographers rely on first hand and eye witness accounts as primary sources of information in their research all the time. This is a method that is as old as the discipline itself.

5. Dr. Ricchetti's report provided no information about how he selected, configured, or performed his GIS analysis. His explanation of his geographic analysis is limited to a single footnote in his original report. Accordingly, I was required to perform a complete review of all of Dr. Ricchetti's geocoded data to even begin my review his analysis. This process occurred over the course of several weeks, long before I ever met with Deputy Thompson.

6. The final step before completing my review of Dr. Ricchetti's geographic analysis was to ground truth my findings. Before, though, I had to determine the best ground truthing options available for this data.

7. Ground truthing is an essential part of the geocoding process and usually occurs at the end of the process. Generally, it involves comparing the actual physical locations with the geocoded latitude and longitude coordinates purportedly associated with the locations. Without ground truthing, there is no way to know if a geocoded location actually coincides with a true physical location. Any geocoding process that does not involve ground truthing is inherently incomplete and unreliable.

8. The simplest example of ground truthing is to have someone visit the true location or geocoded location of the geographic feature you want to ground truth and measure the position using survey grade GPS or survey methodologies. Roadblocks are inherently ephemeral and all the ones at issue here occurred prior to 2018. Obviously, I am unable to go back in time to visit the actual roadblock, and they no longer exist like other real world geographic features, e.g., building, oil derrick, mountain, etc. I had to evaluate other ground truthing options for this project.

9. I determined the two best methods to ground truth on this project were to review the locations using high-resolution imagery and to speak to a firsthand witness regarding the true locations where Madison County Sheriff's Department ("MCSD") sets up roadblocks to determine what, if any, connection there was between a roadblock's true location and the nearby intersection addresses, which officers call in from the field. I used both for my report.

10. Broadly speaking, the purpose of my ground truthing was to test my findings from reviewing Dr. Ricchetti's geographic analysis, which I had developed from my review of his report, datasets, and testimony and based on my experience.

11. In particular, I performed ground truthing to compare Dr. Ricchetti's geocoded locations to the true roadblock locations. One of the best ways to do this was to use high-resolution aerial imagery with a firsthand witness who could attest to the true roadblock location based on his or her experience and knowledge of MCSD's routine practices. This is considered primary source information which is used by many disciplines, not just geography.

12. This is an acceptable method of ground truthing, especially for a project such as this. It is not uncommon and has been used for geographic studies of recent major disasters along the Gulf Coast, e.g., post-Katrina geographic analysis and the geographic analysis of the destruction caused by the Deepwater Horizon disaster. This type of ground truthing is used in academia and real-world applications.

13. I requested to meet with a MCSD representative that knew about MCSD's roadblock program, in particular someone who could provide accurate and precise information about the specific locations where MCSD routinely sets up roadblocks. MCSD sent Deputy Rylon Thompson to meet with me at the University of Southern Mississippi's Gulf Park Campus in Long Beach, Mississippi. As I explained at my deposition, Deputy Thompson appeared to be knowledgeable about the locations where MCSD regularly conducts its roadblocks, especially with regard to the locations shown in Exhibit Nos. 1-11.

14. Before I met with Deputy Thompson, however, I personally reviewed Dr. Ricchetti's datasets and locations using ArcGIS and high-resolution imagery over a period of several weeks. ArcGIS is a mapping software I use daily in my professional and academic work, and is the same software Dr. Ricchetti used. I did this to test and review my own findings against Dr. Ricchetti's findings. I decided to use high-resolution-imagery review with Deputy Thompson in order to encourage a thorough discussion regarding the difference between Dr. Ricchetti's geocoded locations and the true locations of roadblocks.

15. I interviewed Deputy Thompson for over three hours. During this time, we reviewed high-resolutions imagery with Dr. Ricchetti's geocoded locations and Madison County roads overlaid atop. We met in a conference room at USM's Gulf Park Campus where I could display ArcGIS with high-resolution imagery on a large 60 inch LCD

television. During this meeting, Deputy Thompson was able to tell me where roadblocks could or could not be located at intersections or along streets based on his actual experience setting up roadblocks and his knowledge of the MCSD's criteria for choosing roadblock locations, e.g., officer safety, an area where drivers who are detained can be pulled over, visibility, etc. As part of that discussion, he told me that many intersections or roads do not meet these criteria and that most locations are used repeatedly as part of MCSD's practice.

16. During this interview, I tested my initial findings regarding the problems with Dr. Ricchetti's geographic analysis. To do this, we viewed various locations throughout Madison County using high-resolution imagery and discussed Dr. Ricchetti's geocoded locations. Together Deputy Thompson and I reviewed these locations. This process is generally accepted practice for this type of review, as Dr. Frontiera explains in ¶48 of her report. This interview was very important because it allowed me to test and confirm my initial findings regarding the errors I identified in Dr. Ricchetti's geographic analysis and methods.

17. As we completed the interview, I printed eleven maps that I discuss in ¶ 48 of my report and which are attached as Exhibit Nos.1-11. It is my opinion that these maps best illustrate the ground-truthed findings from my review of Dr. Ricchetti's analysis. For the most part, these Exhibits illustrate the errors I initially found in Dr. Ricchetti's analysis long before I met Deputy Thompson. The eleven maps identify areas in Madison County where Dr. Ricchetti's roadblock locations are incorrectly geocoded, misassigned to census tracts, or both. Deputy Thompson had very specific information about each of these locations and MCSD's routine practice with respect to how roadblocks are conducted at these locations.

18. Exhibit Nos. 1-11 depict 22 of the 361 geocoded locations I reviewed for my report, all of which are all listed in Appendix D. Those 22 locations total 222 of 1,843 roadblocks (12%).¹ As I explained in my report and at my deposition, the eleven exhibits represent an inexhaustive list of the geocoding and census tract assignment errors I identified during this review. Dr. Ricchetti's geographic analysis was done as one whole batch, not separately. Thus, many systematic errors are propagated throughout his data sets. Based on my experience and review of his data, I am confident the errors depicted in these exhibits almost certainly exist throughout Dr. Ricchetti's geocoded locations. Because Dr. Richetti's geocoding is the basis for his regression analysis, these errors would have been unavoidably incorporated into his statistical regression analysis. If the data used in a regression analysis is unreliable and inaccurate, one can reasonably expect the results of the regression analysis to also be unreliable and inaccurate.

19. The facts or data I relied upon for my report are they type reasonably relied upon by experts in my field of expertise. This is particularly true of the facts or data I gathered from my interview of Deputy Rylon Thompson. The information gathered from Deputy Thompson is the type that geographers would reasonably rely working on a project such as this.

20. As explained above, I further ground truthed my findings by reviewing Dr. Ricchetti's data on ArcGIS with high-resolution imagery, both alone and during my meeting with Deputy Thompson. The facts and data I gathered from my review of high-resolution imagery is the type of information that geographers would reasonably rely working on a project such as this.

¹ Dr. Ricchetti reviewed 2,004 roadblocks. I reviewed a subset of his data that totaled 1,843 roadblocks at 361 geocoded locations, as listed in Appendix D of my original report.

21. Neither in his two reports or at his deposition did Dr. Richetti ever identify any ground truthing he conducted as part of his geographic analysis prior to assigning roadblocks to census tracts or his statistical analysis. All of his methods were reduced to a footnote. Which is a completely inadequate explanation for a complex procedure such as accurate and precise geocoding. Any concerns about the adequacy of my ground truthing apply equally, if not more severely, to Dr. Ricchetti's failure to conduct any ground truthing before completing his geographic analysis.

22. Dr. Frontiera, the geographer designated by Plaintiffs in response to my findings, does not identify any ground truthing process Dr. Ricchetti used or that she used to validate his geographic analysis. Her report acknowledges Dr. Ricchetti's errors that I identified in my original report but attempts to explain why those errors are immaterial, though she does not conduct her own ground truthing to determine the severity of the error or otherwise specifically quantify the error she acknowledges exists.

23. As I testified at my deposition, I have a minor in mathematics at the undergraduate-level and have taken graduate-level spatial statistics classes. I understand statistical analysis. I regularly use statistical analysis, including regression analysis, in my professional and academic research and publications. I use regression equations and analysis in image processing to calibrate and scale spectral information in multi and hyperspectral image datasets. I use regression equations and analysis to create local datums of marsh environments. I have used regression to create a seamless transformation of LiDAR point data to coordinate information. I have used regression to perform quality inspections of federally funded, statewide LiDAR acquisitions and assess the behavior of the data in multiple habitat-types. I presented these results at a state geospatial conference in 2015. I

have used statistical and regression analysis in scientific peer-review publications. For example, I used regression analyses to examine the relationships of stem diameter, radial growth and change in radial growth from the impact of hurricane Katrina and the role of microtopography in the growth response of Pine trees on Cat Island MS. This article is titled *Evaluating the Influence of Elevation and Impact of Hurricane Katrina on Radial Growth in Slash Pine (Pinus elliottii var. elliottii Engelm) on Cat Island, Mississippi, U.S.A.* and can be found in the Journal of Coastal Research at the following link <http://dx.doi.org/10.2112/JCOASTRES-D-15-00038.1>

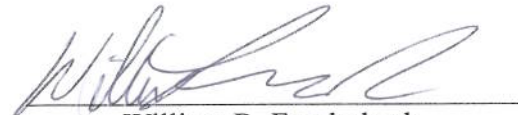
24. I would never use geographic analysis like that prepared by Dr. Ricchetti for any statistical analysis I was conducting in my professional or academic work. He simply cannot say confidently that he knows where the roadblocks are and the points he geocoded are where the roadblocks occurred. As I previously stated, this is largely related to the format of how roadblock information is called in by officers, as noted in ¶15, ¶18, and ¶¶44-46 of my original report. Dr. Frontiera agrees this is a problem in ¶15, ¶20, ¶28 and ¶61 of her report.

25. If a statistician asked me as a geographer to prepare an accurate and reliable geographic analysis of roadblock locations of Madison County to facilitate his or her a statistical analysis, it would not be acceptable for me as a professional geographer to provide the type of analysis that Dr. Ricchetti relied on in these proceedings.

I declare under penalty of perjury that the foregoing is true and correct. 28

U.S.C. § 1746.

July 30, 2018


William R. Funderburk

1 W. Funderburk
2 UNITED STATES DISTRICT COURT

3 FOR THE SOUTHERN DISTRICT OF MISSISSIPPI

4 NORTHERN DIVISION

5 -----
6 LATOYA BROWN; LAWRENCE BLACKMON;
7 HERBERT ANTHONY GREEN;
8 KHADAFY MANNING; QUINNETTA MANNING;
9 MARVIN McFIELD; NICHOLAS SINGLETON;
10 STEVEN SMITH; BESSIE THOMAS; and
11 BETTY JEAN WILLIAMS TUCKER,
12 individually and on behalf of a
13 class of all others similarly
14 situated,

15 Plaintiffs,

16 vs.

17 Civil Action No.

18 3:17-CV-00347-WHB-LRA

19 MADISON COUNTY, MISSISSIPPI;
20 SHERIFF RANDALL S. TUCKER, in his
21 official capacity; and MADISON
22 COUNTY SHERIFF'S DEPUTIES JOHN
23 DOES #1 THROUGH #6, in their
24 individual capacities,

25 Defendants.

DEPOSITION OF WILLIAM FUNDERBURK

Gulfport, Mississippi

Wednesday, June 20, 2018

Reported by: DEBRA AMOS ISBELL, CCR,RDR,CRR

Job No: 143370

<p style="text-align: right;">Page 2</p> <p>1 W. Funderburk</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7 June 20, 2018</p> <p>8 8:07 a.m.</p> <p>9</p> <p>10</p> <p>11</p> <p>12 Deposition of WILLIAM FUNDERBURK, held at</p> <p>13 the offices of Wise Carter Child & Caraway, PA,</p> <p>14 Attorneys at Law, 2510 14th Street, Suite 1125,</p> <p>15 Gulfport, Mississippi, before Debra Amos Isbell,</p> <p>16 a Registered Professional Reporter, Registered</p> <p>17 Diplomate Reporter, Certified Realtime Reporter,</p> <p>18 and Mississippi Certified Court Reporter.</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 3</p> <p>1 W. Funderburk</p> <p>2 A P P E A R A N C E S</p> <p>3 SIMPSON THACHER & BARTLETT</p> <p>4 Attorneys for Plaintiffs</p> <p>5 425 Lexington Avenue</p> <p>6 New York, NY 10017</p> <p>7 BY: ISAAC RETHY, ESQ.</p> <p>8</p> <p>9</p> <p>10 ACLU OF MISSISSIPPI</p> <p>11 Attorneys for Plaintiffs</p> <p>12 Post Office Box 2242</p> <p>13 Jackson, MS 39225</p> <p>14 BY: JOSHUA TOM, ESQ. (VIA TELEPHONE)</p> <p>15</p> <p>16</p> <p>17</p> <p>18 WISE CARTER CHILD & CARAWAY</p> <p>19 Attorneys for Defendants</p> <p>20 2510 14th Street</p> <p>21 Gulfport, MS 39501</p> <p>22 BY: T. RUSSELL NOBILE, ESQ.</p> <p>23</p> <p>24</p> <p>25</p>
<p style="text-align: right;">Page 4</p> <p>1 W. Funderburk</p> <p>2 APPEARANCES (Continued)</p> <p>3</p> <p>4 CURRIE JOHNSON & MYERS</p> <p>5 Attorneys for Defendants</p> <p>6 1044 River Oaks Drive</p> <p>7 P.O. Box 750</p> <p>8 Jackson, MS 39205</p> <p>9 BY: REBECCA COWAN, ESQ.</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	<p style="text-align: right;">Page 5</p> <p>1 W. Funderburk</p> <p>2 WILLIAM FUNDERBURK</p> <p>3 was sworn and testified as follows:</p> <p>4 THE WITNESS: I do.</p> <p>5 EXAMINATION</p> <p>6 BY MR. RETHY:</p> <p>7 Q. Good morning.</p> <p>8 A. Good morning.</p> <p>9 Q. My name is Isaac Rethy. I'm an attorney</p> <p>10 with a law firm called Simpson, Thacher & Bartlett,</p> <p>11 one of the firms representing the plaintiffs in this</p> <p>12 case, Brown, against Madison County. Could you state</p> <p>13 your name for the record?</p> <p>14 A. William Richard Funderburk.</p> <p>15 Q. And what's your home address?</p> <p>16 A. 22103 Episcopal School Road, Long Beach,</p> <p>17 Mississippi.</p> <p>18 Q. Long Beach is in this basic area; is that</p> <p>19 right?</p> <p>20 A. Yes, sir.</p> <p>21 Q. And how long have you lived there?</p> <p>22 A. Approximately two and a half years.</p> <p>23 Q. Have you ever lived in Madison County,</p> <p>24 Mississippi?</p> <p>25 A. No, sir.</p>

<p style="text-align: right;">Page 6</p> <p>1 W. Funderburk</p> <p>2 Q. Could you state your educational background?</p> <p>3 A. I have a bachelor's of science awarded to me</p> <p>4 from the department of geography and geology from the</p> <p>5 University of Southern Mississippi. I also have a</p> <p>6 master's of science awarded to me from the same</p> <p>7 department with a minor in mathematics at the</p> <p>8 undergraduate level.</p> <p>9 Q. Have you ever been deposed before?</p> <p>10 A. No, sir.</p> <p>11 Q. Okay. So I will explain to you a few things</p> <p>12 about how depositions are conducted. A deposition is</p> <p>13 like a court proceeding, but it's obviously not</p> <p>14 conducted in court. But like a court proceeding, you</p> <p>15 are under oath. Do you understand that?</p> <p>16 A. Yes, sir.</p> <p>17 Q. Is there any reason why you can't give</p> <p>18 complete and accurate testimony today?</p> <p>19 A. No, sir.</p> <p>20 Q. Because it's being transcribed, it's</p> <p>21 important to give audible answers rather than shaking</p> <p>22 your head or something like that.</p> <p>23 A. I understand.</p> <p>24 Q. A lot of people, you know, sometimes make a</p> <p>25 mistake there. That's not a big deal, but just</p>	<p style="text-align: right;">Page 7</p> <p>1 W. Funderburk</p> <p>2 something to keep in mind. And if you want to take a</p> <p>3 break, we should be able to take breaks really</p> <p>4 whenever you want.</p> <p>5 A. Okay.</p> <p>6 Q. I'll probably want to take a break maybe</p> <p>7 every hour or so. And so if you want to take a break,</p> <p>8 just ask. The one thing I would ask is that if I have</p> <p>9 asked a question, you would answer the question before</p> <p>10 taking a break. Does that make sense?</p> <p>11 A. That makes sense.</p> <p>12 Q. And so what's your current job, your current</p> <p>13 employment?</p> <p>14 A. I work for the University of Southern</p> <p>15 Mississippi's Gulf Coast Geospatial Center as a field</p> <p>16 application scientist.</p> <p>17 Q. What does that work involve?</p> <p>18 A. High precision, high accuracy, GPS</p> <p>19 coordinates, assigning those coordinates to locations</p> <p>20 along the coast of Mississippi.</p> <p>21 Q. Do you work with -- do you work with the</p> <p>22 ArcGIS program in that work?</p> <p>23 A. Yes, I do. Our agency is actually charged</p> <p>24 with distributing -- developing and distributing</p> <p>25 comprehensive and understandable geographic data stats</p>
<p style="text-align: right;">Page 8</p> <p>1 W. Funderburk</p> <p>2 to state and federal agencies.</p> <p>3 Q. And when you say locations, locations along</p> <p>4 the coast of Mississippi, can you list those</p> <p>5 locations?</p> <p>6 A. Not off the top of my head. And I should</p> <p>7 specify it's not just along the coast. We do</p> <p>8 statewide work. We have 52 continually operating</p> <p>9 reference stations placed throughout the United</p> <p>10 States. We call them CORS, C-O-R-S.</p> <p>11 Q. What is a continually operating reference</p> <p>12 station?</p> <p>13 A. It's a station that continually transmits</p> <p>14 satellite signals -- excuse me -- receives satellite</p> <p>15 signals from the GNSS constellation of satellites,</p> <p>16 which consists of four constellations. I should note</p> <p>17 this is only for civilian use.</p> <p>18 Q. Why did you note that it's only for civilian</p> <p>19 use?</p> <p>20 A. Well, the military has much more robust</p> <p>21 capabilities than the civilian application side of the</p> <p>22 house. Because there's not just four constellations</p> <p>23 of satellites in space. I was just clarifying that.</p> <p>24 (A DISCUSSION WAS HELD OFF THE RECORD.)</p> <p>25 BY MR. RETHY:</p>	<p style="text-align: right;">Page 9</p> <p>1 W. Funderburk</p> <p>2 Q. GNSS constellation of satellites, what is</p> <p>3 GNSS?</p> <p>4 A. That's another acronym that stands for</p> <p>5 global navigation satellite systems, comprised of four</p> <p>6 satellite constellations. We have the American GPS</p> <p>7 constellation, the European Galileo constellation, the</p> <p>8 Russian GLONASS constellation, and the Chinese BeiDou</p> <p>9 constellation that we receive radio signals from, in</p> <p>10 turn allowing engineers, surveyors, anyone with a high</p> <p>11 precision GPS instrumentation, to tie into our network</p> <p>12 and receive realtime differential corrections to their</p> <p>13 GPS, thus eliminating any kind of atmospheric,</p> <p>14 ionospheric, tropospheric error that would incur from</p> <p>15 that satellite signal being transmitted through those</p> <p>16 spheres.</p> <p>17 Q. So you said you work at like a research</p> <p>18 center associated with the University of Southern</p> <p>19 Mississippi?</p> <p>20 A. Yes, sir.</p> <p>21 Q. Is it academic research or do you work with</p> <p>22 the government?</p> <p>23 A. Both.</p> <p>24 Q. What does your work with the government</p> <p>25 involve?</p>

<p style="text-align: right;">Page 10</p> <p>1 W. Funderburk</p> <p>2 A. Again, processing satellite data, CORS data,</p> <p>3 for the National Oceanic Atmospheric Administration,</p> <p>4 also known as NOAA.</p> <p>5 Q. And that satellite data, is that satellite</p> <p>6 data associated with a particular region of the</p> <p>7 country?</p> <p>8 A. No, sir.</p> <p>9 Q. Does your work have a particular geographic</p> <p>10 focus?</p> <p>11 A. We're only bound by the state borders</p> <p>12 because we are a Mississippi institution. So we like</p> <p>13 to focus -- personally me -- my science involves</p> <p>14 focusing on coastal change, subsidence as well as</p> <p>15 upheaval.</p> <p>16 Q. I saw that you had papers that you've</p> <p>17 written or contributed to that are about the barrier</p> <p>18 islands around here; is that right?</p> <p>19 A. Yes, sir.</p> <p>20 Q. So is your focus on coastal change and</p> <p>21 subsidence, would you say that you focus on the</p> <p>22 barrier islands?</p> <p>23 A. So my peer-reviewed research has been on the</p> <p>24 barrier islands mainly because barrier islands</p> <p>25 represent microcosms of the continental United States,</p>	<p style="text-align: right;">Page 11</p> <p>1 W. Funderburk</p> <p>2 and they are key indicators of climate change. Their</p> <p>3 different habitats provide insight to allow us to</p> <p>4 project into the future what's going to happen along</p> <p>5 the coast.</p> <p>6 Q. Have you ever worked as an expert witness</p> <p>7 before in any lawsuit?</p> <p>8 A. No, sir.</p> <p>9 Q. Have you ever worked as a consultant in a</p> <p>10 lawsuit before?</p> <p>11 A. No, sir.</p> <p>12 Q. Have you ever testified in court before?</p> <p>13 A. No, sir.</p> <p>14 Q. Have you ever testified in any sort of</p> <p>15 administrative proceeding?</p> <p>16 A. Could you specify? What type of</p> <p>17 administrative proceeding?</p> <p>18 Q. Like in front of a government agency.</p> <p>19 A. No, sir.</p> <p>20 Q. Do you have an understanding of what the</p> <p>21 lawsuit that this deposition is being taken in</p> <p>22 involves?</p> <p>23 A. 30,000-foot-level understanding.</p> <p>24 Q. And what is that understanding?</p> <p>25 A. Basically Brown versus Madison County, I</p>
<p style="text-align: right;">Page 12</p> <p>1 W. Funderburk</p> <p>2 guess they said that they were setting up roadblocks</p> <p>3 in predominantly black areas. That's the extent of my</p> <p>4 knowledge.</p> <p>5 Q. Have you ever been to Madison County?</p> <p>6 A. Yes.</p> <p>7 Q. How recently have you been to Madison</p> <p>8 County?</p> <p>9 A. Drove through it this past weekend.</p> <p>10 Q. Did you visit Madison County in the course</p> <p>11 of preparing your report?</p> <p>12 A. No, I did not.</p> <p>13 Q. Did you do anything to prepare for this</p> <p>14 deposition?</p> <p>15 A. I met with Mr. Nobile and Mr. Ross yesterday</p> <p>16 for a couple of hours just to get up to speed on</p> <p>17 things with the case.</p> <p>18 Q. Did you review any documents?</p> <p>19 A. My documentation I reviewed for this case,</p> <p>20 yes, sir.</p> <p>21 Q. And your report? Your report?</p> <p>22 A. Can you say it one more time? I apologize.</p> <p>23 Q. Did you review your report?</p> <p>24 A. Yes, I reviewed my report, yes, sir.</p> <p>25 MR. NOBILE: Just go off the record for a</p>	<p style="text-align: right;">Page 13</p> <p>1 W. Funderburk</p> <p>2 second.</p> <p>3 (A DISCUSSION WAS HELD OFF THE RECORD.)</p> <p>4 BY MR. RETHY:</p> <p>5 Q. So other than your report, were there any</p> <p>6 other materials you reviewed?</p> <p>7 A. I reviewed Dr. Ricchetti's report as well as</p> <p>8 a portion of his deposition. But that was not</p> <p>9 yesterday. And I reviewed his production file</p> <p>10 datasets. But all of that is listed in my report,</p> <p>11 what I reviewed.</p> <p>12 Q. Before you -- I guess let's go back to your</p> <p>13 employment. You're currently the research center for</p> <p>14 the University of Southern Mississippi. Is that right</p> <p>15 here on the coast?</p> <p>16 A. Yes, it is.</p> <p>17 Q. I thought I might have driven by it on the</p> <p>18 way to this office. Before that, where were you</p> <p>19 employed before then?</p> <p>20 A. So I've been an employee of the geospatial</p> <p>21 center since 2013. Before that I was in the Army.</p> <p>22 Q. What was your role or rank there?</p> <p>23 A. I was a buck sergeant as a 13 Bravo, which</p> <p>24 is an artillery man.</p> <p>25 Q. Did you have any employment before you were</p>

<p style="text-align: right;">Page 14</p> <p>1 W. Funderburk</p> <p>2 in the Army?</p> <p>3 A. Various side work. I went into the Army</p> <p>4 after I graduated high school. I did lawn stuff,</p> <p>5 manual labor-type stuff, as generally young men do.</p> <p>6 Q. Right. And are you -- are you still in</p> <p>7 school? Are you pursuing a doctorate or other further</p> <p>8 degree?</p> <p>9 A. Currently I elected to withdraw myself from</p> <p>10 the PhD program due to the extensive amount of family</p> <p>11 life I have. I have three children. So conducting a</p> <p>12 dissertation, research and attending classes is just a</p> <p>13 lot to do with three young children. So I had to</p> <p>14 prioritize. But currently I am finishing up a</p> <p>15 mathematics undergraduate. As an employee of the</p> <p>16 university, you have a benefit to take six hours of</p> <p>17 course work free of charge, so sort of continuing</p> <p>18 education. And be it that I have a minor in</p> <p>19 mathematics, it was sort of a no-brainer to try to</p> <p>20 just finish that up.</p> <p>21 Q. So you mentioned that the research center</p> <p>22 does work with NOAA; right? Any other work with the</p> <p>23 federal government?</p> <p>24 A. No, sir, not federal government.</p> <p>25 Q. Any other work with state or local</p>	<p style="text-align: right;">Page 15</p> <p>1 W. Funderburk</p> <p>2 governments?</p> <p>3 A. I do oftentimes provide guidance and</p> <p>4 assistance to local municipalities in the development</p> <p>5 of their geographic information systems of their</p> <p>6 localities. I also am in charge of developing</p> <p>7 external relationships and seeking external funding</p> <p>8 for experiments to be performed such as remote sensing</p> <p>9 experiments, as listed in my CV.</p> <p>10 Q. Have you ever worked with or worked for a</p> <p>11 law enforcement agency before this matter?</p> <p>12 A. No, sir.</p> <p>13 Q. You have military experience, but you don't</p> <p>14 have law enforcement experience; is that correct?</p> <p>15 A. Correct.</p> <p>16 Q. Do you have any expertise in statistics?</p> <p>17 A. I would say yes.</p> <p>18 Q. What is that?</p> <p>19 A. I've used various statistics and statistical</p> <p>20 analyses in the scientific peer-review publications</p> <p>21 that I have put out as well as taken graduate-level</p> <p>22 statistics courses as well as undergraduate-level</p> <p>23 statistics courses.</p> <p>24 Q. Are you familiar with the concept classical</p> <p>25 measurement error?</p>
<p style="text-align: right;">Page 16</p> <p>1 W. Funderburk</p> <p>2 A. Not off the top of my head.</p> <p>3 Q. Could you describe the work you did to</p> <p>4 prepare your report?</p> <p>5 A. That's a pretty open-ended question. Can</p> <p>6 you be a little more specific, please?</p> <p>7 Q. It looks like from your report that you</p> <p>8 spoke to at least one of the sheriff's deputies for</p> <p>9 Madison County named Rylon Thompson; is that correct?</p> <p>10 A. That is correct; yes, sir.</p> <p>11 Q. Did you speak to any other Madison County</p> <p>12 Sheriff's Department personnel?</p> <p>13 A. No, I did not.</p> <p>14 Q. Did you review any written materials</p> <p>15 prepared by Madison County Sheriff's Department</p> <p>16 personnel?</p> <p>17 A. I did. I reviewed Mr. Sandridge's -- Mark</p> <p>18 Sandridge's -- I don't remember if he's a deputy or</p> <p>19 officer -- Mark Sandridge's report.</p> <p>20 MR. NOBILE: Declaration for him.</p> <p>21 Q. And other than -- I think it's Lieutenant</p> <p>22 Sandridge. Other than Lieutenant Sandridge's</p> <p>23 report -- sorry -- other than Lieutenant Sandridge's</p> <p>24 declaration, did you review any other written</p> <p>25 materials prepared by any other sheriff's department</p>	<p style="text-align: right;">Page 17</p> <p>1 W. Funderburk</p> <p>2 personnel?</p> <p>3 A. No.</p> <p>4 Q. How many times did you speak to Deputy Rylon</p> <p>5 Thompson?</p> <p>6 A. I spoke to him one time.</p> <p>7 Q. For about how long?</p> <p>8 A. Maybe three hours, maybe a lunch break in</p> <p>9 between there.</p> <p>10 Q. Was that by phone or in person?</p> <p>11 A. In person.</p> <p>12 Q. Was that in this area? You said you didn't</p> <p>13 go to Madison County in connection with preparing this</p> <p>14 report. So I'm assuming that Deputy Thompson came to</p> <p>15 you?</p> <p>16 A. That's correct.</p> <p>17 Q. Did he come to the research center?</p> <p>18 A. No, sir, he did not.</p> <p>19 Q. Where was that interview?</p> <p>20 A. We met in a conference room at the</p> <p>21 university.</p> <p>22 Q. Who else was there, if anyone?</p> <p>23 A. Mr. Nobile was there.</p> <p>24 Q. And what was the -- what was the subject</p> <p>25 matter at that interview?</p>

<p style="text-align: right;">Page 18</p> <p>1 W. Funderburk</p> <p>2 A. I was trying to get a feel for some -- I</p> <p>3 used Deputy Thompson for ground truth information, to</p> <p>4 validate the geocoded locations that were in</p> <p>5 Dr. Ricchetti's report, validate a portion of them.</p> <p>6 Q. And could you describe what the term or the</p> <p>7 phrase "ground truth" means?</p> <p>8 A. So ground truth would be if you create</p> <p>9 geocoded points, you assign coordinates to a location,</p> <p>10 ground truth would be -- an example would be going out</p> <p>11 there, cross referencing those coordinates with your</p> <p>12 own measured coordinates, and comparing how close they</p> <p>13 are just to validate that the coordinates are in the</p> <p>14 correct place.</p> <p>15 Q. So you said an example would be going out</p> <p>16 there, cross referencing those coordinates with your</p> <p>17 own measured coordinates. So I'm going to try to just</p> <p>18 unpack that a little. When you say "going out there,"</p> <p>19 what does that mean?</p> <p>20 A. Yeah, I used it -- in terms of going out to</p> <p>21 the field, it's sort of jargon in my industry. So one</p> <p>22 of the geo-located points that I was -- excuse me --</p> <p>23 one of the geocoded points, you would in turn navigate</p> <p>24 to that point, take a GPS measurement, and cross-</p> <p>25 reference it with what was geocoded through the</p>	<p style="text-align: right;">Page 19</p> <p>1 W. Funderburk</p> <p>2 software program.</p> <p>3 Q. But that's not what you did in connection</p> <p>4 with this report; is that right? Like you didn't</p> <p>5 navigate to any of the points personally and then take</p> <p>6 any measurements; is that fair?</p> <p>7 A. You're correct; yes, sir.</p> <p>8 Q. So what sort of -- I guess what sort of</p> <p>9 ground truth validation did Deputy Thompson provide?</p> <p>10 A. He provided the validation of where the</p> <p>11 actual roadblocks occurred, be it that we can't go</p> <p>12 back in time to when the roadblocks were occurring and</p> <p>13 go and take ground truth measurements or GPS point of</p> <p>14 that information. So you have to rely on someone who</p> <p>15 was there on the ground, boots on the ground, who can</p> <p>16 validate that that's the location they were at.</p> <p>17 Q. Other than for this assignment, have you</p> <p>18 ever used a similar type of ground truth validation in</p> <p>19 your work?</p> <p>20 A. Yes, sir, I have.</p> <p>21 Q. Could you describe that?</p> <p>22 A. Yeah. When we take remotely-sensed image</p> <p>23 data, classify it into habitat types, to perform a</p> <p>24 supervised classification you have to conduct a field</p> <p>25 survey or have ground truth information. So we do</p>
<p style="text-align: right;">Page 20</p> <p>1 W. Funderburk</p> <p>2 this in just about every project that we do at the</p> <p>3 geospatial center. We navigate to a GPS point that we</p> <p>4 randomly assign in a software program or using ArcGIS,</p> <p>5 take a measurement with our high precision</p> <p>6 instrumentation and also take cardinal directional</p> <p>7 photographs, a certain radial distance away from a</p> <p>8 range pole that allows us to use photometric</p> <p>9 techniques to extrapolate habitat types beyond what's</p> <p>10 in a pixel. So, for example, if you had a pixel on</p> <p>11 the ground, you would be able to then estimate how far</p> <p>12 that habitat type goes out based on the photograph and</p> <p>13 the range pole measurements.</p> <p>14 Q. The way you just described here, that wasn't</p> <p>15 what -- that wasn't the process that you ran with</p> <p>16 Deputy Thompson; right? Deputy Thompson didn't do any</p> <p>17 of these various technical steps that you outlined; is</p> <p>18 that correct?</p> <p>19 A. He -- no, sir. You are correct. But the</p> <p>20 thing about ground truth information is -- so we</p> <p>21 document it for posterity and longevity. But if you</p> <p>22 have somebody who was on the ground conducting that --</p> <p>23 in this case a roadblock -- in this case it is</p> <p>24 acceptable, it's an acceptable technique.</p> <p>25 Q. Could you describe -- so the acceptable</p>	<p style="text-align: right;">Page 21</p> <p>1 W. Funderburk</p> <p>2 technique is what?</p> <p>3 A. Using someone who was there at a site to</p> <p>4 validate their location on a map.</p> <p>5 Q. Is that something that you've done before?</p> <p>6 A. What do you mean?</p> <p>7 Q. I mean, so you say that's an acceptable</p> <p>8 technique. Is that a technique that you've used in</p> <p>9 your work other than for this report?</p> <p>10 A. Yes.</p> <p>11 Q. And could you describe when you've used that</p> <p>12 other than in this report?</p> <p>13 A. Yes. For example, there was a graduate</p> <p>14 student we had that we compiled a geodatabase for of</p> <p>15 habitat types. She had never been to those locations,</p> <p>16 but she used our ground truth information to develop</p> <p>17 her analysis. So she relied on where we had been in</p> <p>18 the past to construct her analysis and do her</p> <p>19 research. And that was 2015, 2016, I believe.</p> <p>20 Q. I'm going to try to understand that a bit</p> <p>21 better. You're saying that you compiled a geodatabase</p> <p>22 of habitat types for this particular graduate student?</p> <p>23 A. We didn't compile it for the graduate</p> <p>24 student. We compiled it for our own research</p> <p>25 purposes. We let her have it for her research</p>

<p style="text-align: right;">Page 22</p> <p>1 W. Funderburk</p> <p>2 purposes.</p> <p>3 Q. So when you compiled a geodatabase, what</p> <p>4 does that mean?</p> <p>5 A. Well, again, in this particular instance</p> <p>6 that we're speaking of we had a 200-meter wide by</p> <p>7 6500-meter long belt transect that we had placed</p> <p>8 random GPS locations throughout that belt transect.</p> <p>9 And our field methods are consistent with we navigate</p> <p>10 to the point, measure it with our GPS, stick the range</p> <p>11 pole in the ground, take cardinal directional photos</p> <p>12 approximately four meters away from the range pole,</p> <p>13 and then when you compile it into ArcGIS, you</p> <p>14 construct a geodatabase of that point file</p> <p>15 information. So you can actually click on that point</p> <p>16 on a map and pull up the habitat types that you see in</p> <p>17 the photographs.</p> <p>18 Q. And that was -- and what you just described</p> <p>19 there, that was the ground truth information that the</p> <p>20 graduate student then relied on?</p> <p>21 A. Yes.</p> <p>22 Q. And so Deputy Thompson didn't perform any of</p> <p>23 those -- any of those steps that you just described?</p> <p>24 He didn't navigate to these points, measure them with</p> <p>25 a GPS, take cardinal directional photos or anything</p>	<p style="text-align: right;">Page 23</p> <p>1 W. Funderburk</p> <p>2 like that; right?</p> <p>3 A. No, sir.</p> <p>4 Q. And so what I'm getting at is to me that</p> <p>5 doesn't seem like an example of using the same process</p> <p>6 that you used with Deputy Thompson because there it</p> <p>7 seems like someone -- like another researcher is</p> <p>8 relying on your work done in this particular</p> <p>9 methodology that you've explained rather than a</p> <p>10 researcher simply relying on another person's -- his</p> <p>11 recollection or memory, you know, not corroborated by</p> <p>12 all of the research steps that you described.</p> <p>13 MR. NOBILE: Are you done? I just want to</p> <p>14 make sure there's a question in there.</p> <p>15 Q. Would you agree that your interview of</p> <p>16 Deputy Thompson was a different procedure than the</p> <p>17 procedure you described with the graduate student</p> <p>18 relying on your previous work?</p> <p>19 A. No, I don't agree with that completely.</p> <p>20 They're not that different, in the case of this case</p> <p>21 versus the research example that I previously</p> <p>22 discussed. So when we do that ground truth</p> <p>23 validation, using the methodology that I listed,</p> <p>24 that's for scientific investigations that have to go</p> <p>25 through the peer-review process. So you want to make</p>
<p style="text-align: right;">Page 24</p> <p>1 W. Funderburk</p> <p>2 sure that you dot your Is and cross your Ts because</p> <p>3 when you have a blind peer review they're going to</p> <p>4 question everything. And so you want the highest</p> <p>5 precision, highest accuracy, most reliable data that</p> <p>6 you can get. And repeatable transparent methodology.</p> <p>7 In this case Deputy Thompson was on the</p> <p>8 ground. And since we, again, cannot go back in time</p> <p>9 to when the roadblocks occurred, his subsequent</p> <p>10 statements are acceptable to validate where the</p> <p>11 roadblocks actually occurred.</p> <p>12 Q. And when you say "acceptable," what do you</p> <p>13 mean by that?</p> <p>14 A. Could you restate the question in a little</p> <p>15 bit more clear form?</p> <p>16 Q. You said that Deputy Thompson's statements</p> <p>17 are acceptable to validate where the roadblocks</p> <p>18 actually occurred. And when you say "acceptable,"</p> <p>19 what do you mean by that?</p> <p>20 A. Given the fact that he was there on the</p> <p>21 ground, that's an acceptable form of testimony to use</p> <p>22 as to validate where the locations actually were</p> <p>23 versus where they were geocoded.</p> <p>24 Q. So acceptable to who?</p> <p>25 A. To me, to just about any GIS expert, I would</p>	<p style="text-align: right;">Page 25</p> <p>1 W. Funderburk</p> <p>2 say -- I would venture to say -- in this type of case.</p> <p>3 Q. Have you ever used this particular</p> <p>4 methodology before other than this report? And I know</p> <p>5 that I asked that before, but I'm trying to really</p> <p>6 focus on whether you used the specific methodology of</p> <p>7 relying on an individual's memory rather than relying</p> <p>8 on past ground truth studies or however you might</p> <p>9 actually refer to them as per the example that you</p> <p>10 before?</p> <p>11 MR. NOBILE: I'll just say objection to</p> <p>12 form, but go ahead.</p> <p>13 A. So what was the question?</p> <p>14 Q. Have you ever -- so I've been trying to</p> <p>15 distinguish between two methodologies, and one is the</p> <p>16 methodology that you described in which you and other</p> <p>17 researchers go to a location, take GPS measurements</p> <p>18 and take photographs, et cetera. So that's one</p> <p>19 methodology. And then there's the other methodology</p> <p>20 which is what was used here with Deputy Thompson,</p> <p>21 where you interviewed him based on not him having</p> <p>22 taken any sorts of measurements but rather on his</p> <p>23 recollection or personal experience. Is that a fair</p> <p>24 description?</p> <p>25 A. The description of --</p>

<p style="text-align: right;">Page 26</p> <p>1 W. Funderburk</p> <p>2 Q. The two different methodologies.</p> <p>3 A. Yes, yes, I believe it's a fair enough</p> <p>4 description, yes.</p> <p>5 Q. And so we're talking about the methodology</p> <p>6 that was used with Deputy Thompson. Have you ever</p> <p>7 used that specific methodology other than in preparing</p> <p>8 this report?</p> <p>9 A. Well, yes. But not as a scientist. I can</p> <p>10 give you an example from my service history, for</p> <p>11 example. If we were to get into a fire fight, when we</p> <p>12 would get back to Camp Diamondback, we'd have to fill</p> <p>13 out a serious incident report and describe a rough</p> <p>14 estimate, based on our recollection, of where we got</p> <p>15 into a fire fight at and that's acceptable to the</p> <p>16 higher chain of command. But that's about the closest</p> <p>17 example I could give you because I've been involved in</p> <p>18 scientific research for so long after that.</p> <p>19 MR. NOBILE: Let me just make an objection</p> <p>20 here. I mean, it sounds like you're asking is it</p> <p>21 allowable to use firsthand -- or do you need to use</p> <p>22 firsthand versus secondhand or Officer Thompson's</p> <p>23 firsthand account of what happened. That's obviously</p> <p>24 allowed under the Federal Rules of Evidence. He's</p> <p>25 presented as an expert. You're fine to keep going</p>	<p style="text-align: right;">Page 27</p> <p>1 W. Funderburk</p> <p>2 with your questioning. But I think that's what your</p> <p>3 questioning is, is it normal to use basically</p> <p>4 secondhand information from someone like Officer</p> <p>5 Thompson versus going and getting firsthand</p> <p>6 information. Is that sort of where you're going? I</p> <p>7 just want to make sure we're clear on the record,</p> <p>8 because obviously this would be something that may</p> <p>9 come up later. Because I'm going to make my</p> <p>10 evidentiary objection. You can go on with your</p> <p>11 question, but I'm making my evidentiary foundation</p> <p>12 objection.</p> <p>13 MR. RETHY: He's not presented as an expert</p> <p>14 under the Federal Rules of Evidence. I wasn't asking</p> <p>15 him the question about some evidentiary principle.</p> <p>16 MR. NOBILE: Look, I'm not saying you can't</p> <p>17 ask him this. I mean, I'll read rule 703 here just</p> <p>18 for the record. But I mean I'm just laying my</p> <p>19 objection here, stating my objection here for any</p> <p>20 potential evidentiary motion that may pend. Your</p> <p>21 question is about his methodology for obtaining</p> <p>22 information -- I mean, I'm welcome to keep talking</p> <p>23 about this, but I don't want to be accused of --</p> <p>24 MR. RETHY: Speaking objections?</p> <p>25 MR. NOBILE: Yeah. I mean, I'm happy to</p>
<p style="text-align: right;">Page 28</p> <p>1 W. Funderburk</p> <p>2 explain my objection. But I don't want you to --</p> <p>3 MS. COWAN: Continuing objection.</p> <p>4 MR. NOBILE: Yeah, I'll just make a</p> <p>5 continuing objection that he's allowed to testify</p> <p>6 using information he's set forth under rule 703. And</p> <p>7 then you can continue with your line of questions.</p> <p>8 BY MR. RETHY:</p> <p>9 Q. Okay. I'm sure that was very meaningful to</p> <p>10 you.</p> <p>11 A. I didn't even understand it. Apologies.</p> <p>12 Q. So going back to where -- back to before all</p> <p>13 of the legal what have you, so you said you had used</p> <p>14 the methodology used with Deputy Thompson before but</p> <p>15 not as a scientist, rather it was what you would do in</p> <p>16 filling out serious incident reports in the military;</p> <p>17 is that fair?</p> <p>18 A. Correct.</p> <p>19 Q. So why haven't you used this methodology as</p> <p>20 a scientist?</p> <p>21 A. Just a standard method that we developed and</p> <p>22 have stuck to since 2010. If it's not broke, don't</p> <p>23 fix it.</p> <p>24 Q. Have you encountered any scientific</p> <p>25 literature in geography or geospatial analysis that</p>	<p style="text-align: right;">Page 29</p> <p>1 W. Funderburk</p> <p>2 uses the methodology of relying on an interview</p> <p>3 subject's historical recollection?</p> <p>4 A. I can't really recall every scientific paper</p> <p>5 I've ever reviewed or published or referenced. So</p> <p>6 there are repeat photography instances based upon</p> <p>7 memory. And I am not a rhetorician. So could you</p> <p>8 repeat the question one more time? I'm sorry.</p> <p>9 Q. I said: Are you familiar with any</p> <p>10 scientific literature that uses the methodology of</p> <p>11 relying on an interviewed subject's historical</p> <p>12 recollection?</p> <p>13 A. Yes.</p> <p>14 Q. And what would that be?</p> <p>15 MR. NOBILE: Objection.</p> <p>16 Q. When he says objection, you can still answer</p> <p>17 unless he specifically tells you not to answer.</p> <p>18 MR. NOBILE: Yeah. I'm making a foundation.</p> <p>19 This is for things for him and I to argue about later.</p> <p>20 I've just got to make a record so we can get to it</p> <p>21 later.</p> <p>22 A. Sorry. What was the question again?</p> <p>23 Q. So I asked: Are you familiar with any</p> <p>24 scientific literature that uses the methodology of</p> <p>25 relying on an interviewed subject's historical</p>

<p style="text-align: right;">Page 30</p> <p>1 W. Funderburk</p> <p>2 recollection regarding the location of coordinates</p> <p>3 that you're trying to accurately plot?</p> <p>4 A. Yes, I am.</p> <p>5 Q. And then you said yes, and I asked you what</p> <p>6 is that literature.</p> <p>7 A. I don't remember the title off the top of my</p> <p>8 head, but my wife is a rhetorician, and she deals with</p> <p>9 rhetorical landscapes all the time based off of memory</p> <p>10 and validates locations from historical interviews,</p> <p>11 documentation and memory. For example, she just</p> <p>12 recently came out with an article about Evelyn Gandy.</p> <p>13 I apologize, I don't remember the title off the top of</p> <p>14 my head.</p> <p>15 Q. You said R-H-E-T-O-R-I-C-I-A-N?</p> <p>16 A. I believe that's the correct spelling.</p> <p>17 Q. That's a use of that term that I may not be</p> <p>18 familiar with. It seemed to me -- my understanding</p> <p>19 it's, you know, sort of the art of speaking well or</p> <p>20 something like that. You seem to be using it in a</p> <p>21 very different -- to have a very different meaning.</p> <p>22 Could you describe what that is?</p> <p>23 A. I can't really describe exactly what</p> <p>24 rhetoricians do. I can just tell you what my wife</p> <p>25 does in sort of the loosely defined concept.</p>	<p style="text-align: right;">Page 31</p> <p>1 W. Funderburk</p> <p>2 Q. You said that she deals with rhetorical</p> <p>3 landscapes. Can you describe what a rhetorical</p> <p>4 landscape is?</p> <p>5 A. I cannot.</p> <p>6 MR. NOBILE: Okay. Just to be clear, I</p> <p>7 mean, we're having a discussion about methodology by a</p> <p>8 different person's analysis in relying on witness</p> <p>9 information regarding the existence and occurrence of</p> <p>10 something. We're not having a deposition on whatever</p> <p>11 it is his wife does. So I just want to make sure,</p> <p>12 when you state his methodology --</p> <p>13 MR. RETHY: I'm asking the question because</p> <p>14 this was his example where he's seen his methodology</p> <p>15 used.</p> <p>16 MR. NOBILE: I object to that</p> <p>17 characterization. But you can go forward.</p> <p>18 Q. So you said you've seen methodology of</p> <p>19 relying on an interviewed's subject's historical</p> <p>20 recollection used in your wife's field of expertise;</p> <p>21 is that fair?</p> <p>22 A. Yes. I would also extend it to some of the</p> <p>23 more human side of geography, which is not what I deal</p> <p>24 with at all, where they deal with cultural analysis</p> <p>25 and that deals with many interviews, surveys,</p>
<p style="text-align: right;">Page 32</p> <p>1 W. Funderburk</p> <p>2 historical recollection of, for example, hurricane</p> <p>3 impacts, you know, how it affects a community, that</p> <p>4 nature or type stuff. But I'm more of a physical,</p> <p>5 technical geographer. That's outside of my wheelhouse</p> <p>6 and it's not what I was asked to do in this case.</p> <p>7 Q. But other than your wife's field of</p> <p>8 expertise and the human side of geography, are you</p> <p>9 familiar with the scientific literature relying on</p> <p>10 historical recollection in determining whether a</p> <p>11 location is accurately geocoded?</p> <p>12 MR. NOBILE: Objection to form. He just</p> <p>13 testified that he has worked on hurricane impacts and</p> <p>14 Historical recollection and how that affects a</p> <p>15 community. So your characterization --</p> <p>16 MR. RETHY: Your characterization is wrong.</p> <p>17 Q. You said that you didn't work on that and</p> <p>18 that was historical, the more human side of geography,</p> <p>19 it's not your expertise.</p> <p>20 MR. NOBILE: He does coastal flooding.</p> <p>21 Flooding and coastal stuff is, by definition,</p> <p>22 hurricane impact.</p> <p>23 MR. RETHY: I don't know what you're trying</p> <p>24 to get at here. I'm just trying to sort of ask</p> <p>25 questions and get answers and not get into like</p>	<p style="text-align: right;">Page 33</p> <p>1 W. Funderburk</p> <p>2 extensive colloquies. I think nothing that I'm saying</p> <p>3 here is out of scope at all.</p> <p>4 MR. NOBILE: I'm not stopping you from</p> <p>5 asking the questions, Isaac. I'm just stating my</p> <p>6 objections. You made a qualification of saying other</p> <p>7 than a couple of factors. And I'm saying no, he just</p> <p>8 said he looks at historical impact from hurricanes.</p> <p>9 And your qualification didn't include that. And so</p> <p>10 the whole line of questioning involves whether or not</p> <p>11 he does firsthand account versus relies on historical</p> <p>12 memories from individuals. And, you know, he doesn't</p> <p>13 stand out in the middle of a hurricane storm to take</p> <p>14 measurements. He goes out after the fact.</p> <p>15 MR. RETHY: I'm going to read back his</p> <p>16 answer: "Yes. I would also extend it to some of the</p> <p>17 more human side of geography, which is not what I deal</p> <p>18 with at all, where they deal with cultural analysis</p> <p>19 and that deals with many interviews, surveys,</p> <p>20 historical recollection of, for example, hurricane</p> <p>21 impacts, how it affects a community, that nature or</p> <p>22 type stuff. But I'm more of a physical, technical</p> <p>23 geographer. That's outside of my wheelhouse and it's</p> <p>24 not what I was asked to do in this case."</p> <p>25 MR. NOBILE: Okay. But when you're talking</p>

1 W. Funderburk
2 about historical communities, he's talking about
3 communities where people live. But he actually goes
4 out to islands. I think you're looking at communities
5 in a very narrow sense. Do you understand?

6 MR. RETHY: I never even used the word
7 "community."

8 MR. NOBILE: You just interpreted his
9 statement. And I'm telling you that you're
10 narrowing -- you're not hearing the other part of it.
11 And I'm objecting to your qualification. I'm making
12 my record. I'm happy to continue to talk about and
13 you're welcome to continue to keep asking about it.
14 But I'm going to keep making my objections and I'm
15 going to make my record just like you are. I mean,
16 I'm not saying you can't ask these lines of questions.
17 I'm just saying I'm going to make my objections. I
18 mean, we can reach an agreement on that; right?

19 MR. RETHY: You're obviously entitled to
20 make objections. I do object to extensive speaking
21 objections that involve both characterizations of my
22 questions and characterizations of testimony that are
23 other than what's stated in the record. I don't think
24 that's necessary at all to preserve your objections.

25 MR. NOBILE: I objected to form. I objected

1 W. Funderburk
2 that you made a qualification, then you
3 mischaracterized his statement. And I stated
4 specifically what. And then you wanted to discuss it,
5 which I'm fine to discuss it. But if you engage me in
6 a discussion, I'm going to discuss it as much as I
7 feel obliged to on the record. And I'm not going to
8 keep arguing with you about the transcript. You're
9 welcome to continue asking your questions. But let's
10 not get bogged down in this. We can go off the
11 record, too, and discuss it if you'd like. But
12 there's no need to get bogged down in you and I going
13 back and forth, because I'm going to keep talking if
14 we are.

15 I've made my objection. Just continue on.

16 BY MR. RETHY:

17 Q. So you said earlier that you had also
18 extended "to some of the more human side of geography,
19 which is not what I deal with at all, where they deal
20 with cultural analysis, and that deals with many
21 interviews, surveys, historical recollection of, for
22 example, hurricane impacts, how it affects a
23 community."

24 When you said that, were you referring to
25 work that you do or work that others do that's outside

1 W. Funderburk
2 of your scope?

3 A. So in that example I was referring to work
4 that a colleague did in South America.

5 Q. And that's human geography work?

6 A. There's a very fine line between human
7 geographer and physical geographer, and sometimes they
8 overlap. And that's more of an internal academic
9 interdisciplinary thing. Perhaps I was unfair to the
10 human geographers. I do deal with -- I have dealt
11 with in my education human geography situations as
12 part of my graduate education.

13 Q. But that's not your focus; is that correct?

14 A. My preference of research is not that;
15 correct.

16 Q. And you said earlier that it's outside your
17 wheelhouse and not what you were asked to do in this
18 case; is that right?

19 A. That's what I said, yes, sir, I believe.

20 Q. And when you say it's outside of my
21 wheelhouse, what do you mean by that?

22 A. It's not my preference of scientific
23 research. Not that I can't do it. It's not what I
24 prefer to do.

25 Q. And is that what you did for your report?

1 W. Funderburk
2 Would you consider it human geography?

3 A. No, not at all.

4 Q. So what would you describe your -- could you
5 just say again what your discipline is?

6 MR. NOBILE: Objection. His report states
7 more than enough about his discipline. I mean, he's
8 welcome to do it, but you've got his report. Just for
9 the record, you don't have it in front of him at this
10 point. But go ahead.

11 A. Can you repeat it one more time?

12 Q. What is your discipline?

13 A. So again, I was awarded a bachelor of
14 science from the department of geography and geology
15 and a master's in science from the department of
16 geography and geology. So in terms of academic
17 discipline, my academic discipline is housed in
18 geography and geology. And I have a minor in
19 mathematics at the undergraduate level.

20 Q. What academic discipline were you applying
21 in your report.

22 A. I don't necessarily think that it's fair to
23 state that you're applying an academic discipline.
24 It's just applying research techniques.

25 Q. So you said earlier that you've seen the

<p style="text-align: right;">Page 38</p> <p>1 W. Funderburk</p> <p>2 research technique of relying on an interviewed</p> <p>3 subject's historical recollection used in your wife's</p> <p>4 discipline and in the field of human geography. Have</p> <p>5 you seen it used in any other fields?</p> <p>6 MR. NOBILE: Objection, form.</p> <p>7 A. I can't recall off the top of my head.</p> <p>8 Q. Is that a research technique that you used</p> <p>9 in any paper that you've published?</p> <p>10 A. Do you mean the technique of using firsthand</p> <p>11 memory?</p> <p>12 Q. Correct.</p> <p>13 A. To identify locations?</p> <p>14 Q. Yes.</p> <p>15 A. Not in anything that I have published, no,</p> <p>16 sir.</p> <p>17 Q. Do you participate in peer review? Like are</p> <p>18 you on any committees that engage in peer review of</p> <p>19 other academic articles?</p> <p>20 A. I have done peer reviews for the Journal of</p> <p>21 Coastal Research as well as the Journal of</p> <p>22 Geomorphology.</p> <p>23 Q. Do you recall seeing this research technique</p> <p>24 we've been discussing used in any articles that you've</p> <p>25 reviewed as a peer reviewer?</p>	<p style="text-align: right;">Page 39</p> <p>1 W. Funderburk</p> <p>2 A. No, sir. But I will just reiterate that</p> <p>3 this case is not a scientific investigation. So the</p> <p>4 datasets aren't necessarily comparable the way that</p> <p>5 you would treat them.</p> <p>6 Q. When you interviewed Deputy Thompson, did he</p> <p>7 confirm to you that he had been present at each of the</p> <p>8 roadblocks that had been plotted in Dr. Ricchetti's</p> <p>9 report?</p> <p>10 A. He was present at the roadblocks that are in</p> <p>11 my exhibits. I can't attest to if he was present at</p> <p>12 every roadblock in Dr. Ricchetti's report.</p> <p>13 Q. Do you recall whether -- so you understand</p> <p>14 that a roadblock could occur at a particular location</p> <p>15 more than once; right?</p> <p>16 A. Yes, sir.</p> <p>17 Q. Did any of the roadblocks that you discussed</p> <p>18 with -- any of the roadblock locations that you</p> <p>19 discussed with Deputy Thompson, do you recall whether</p> <p>20 they were locations at which roadblocks had occurred</p> <p>21 more than once?</p> <p>22 A. Could you restate the question one more</p> <p>23 time, please?</p> <p>24 Q. So you discussed a subset of roadblock</p> <p>25 locations with Deputy Thompson; is that fair?</p>
<p style="text-align: right;">Page 40</p> <p>1 W. Funderburk</p> <p>2 A. Yes, sir.</p> <p>3 Q. Do you recall whether any of the roadblock</p> <p>4 locations that you discussed were roadblock locations</p> <p>5 at which the MCSD -- and if I say MCSD, do you</p> <p>6 understand that refers to Madison County Sheriff's</p> <p>7 Department?</p> <p>8 A. I do now.</p> <p>9 Q. Sorry about that. So do you recall whether</p> <p>10 any of the roadblock locations that you discussed were</p> <p>11 locations at which the MCSD had set up roadblocks more</p> <p>12 than once?</p> <p>13 A. If you're asking if they were locations</p> <p>14 where there was a higher frequency than one time, I do</p> <p>15 recall several of them from my exhibits.</p> <p>16 Q. Did you confirm with Deputy Thompson that he</p> <p>17 had been present at each instance at which a roadblock</p> <p>18 was conducted?</p> <p>19 A. I can't recall off the top of my head that I</p> <p>20 asked him that specific question. My understanding is</p> <p>21 that Deputy Thompson is involved in the placement --</p> <p>22 the development and placement of these roadblocks.</p> <p>23 Again, that's my limited understanding based on the</p> <p>24 reports that I reviewed from Lieutenant Sandridge.</p> <p>25 Q. You said earlier that this case is not a</p>	<p style="text-align: right;">Page 41</p> <p>1 W. Funderburk</p> <p>2 scientific investigation, so the datasets aren't</p> <p>3 necessarily comparable in the way that you would treat</p> <p>4 them. Could you describe how they are noncomparable?</p> <p>5 A. For example, when we assign random locations</p> <p>6 in scientific investigations, we don't use the</p> <p>7 geocoding tool in ArcGIS which is meant to convert</p> <p>8 address locality information to coordinate</p> <p>9 information.</p> <p>10 MR. NOBILE: We've been going a little bit</p> <p>11 over an hour. Do you mind if we take a break?</p> <p>12 MR. RETHY: Sure. We can go off the record.</p> <p>13 (A RECESS WAS TAKEN FROM 9:10 A.M.</p> <p>14 TO 9:34 a.m.)</p> <p>15 MR. RETHY: I will mark an exhibit,</p> <p>16 Exhibit 1. It's your report.</p> <p>17 (EXHIBIT 1, REPORT OF WILLIAM R. FUNDERBURK,</p> <p>18 WAS MARKED FOR IDENTIFICATION.)</p> <p>19 Q. Do you recognize this?</p> <p>20 A. Yes, I do.</p> <p>21 Q. This is the report you submitted in this</p> <p>22 case; right?</p> <p>23 A. Yes, sir.</p> <p>24 Q. Did you draft this report?</p> <p>25 A. Did I draft it?</p>

<p style="text-align: right;">Page 42</p> <p>1 W. Funderburk</p> <p>2 Q. Yeah.</p> <p>3 A. Did I write it?</p> <p>4 Q. Yeah.</p> <p>5 A. Yes, sir.</p> <p>6 Q. So let's go to paragraph 46. And so this</p> <p>7 paragraph states: "I interviewed Dr. Rylon Thompson</p> <p>8 for purposes of my review."</p> <p>9 And this is referring to the interview we</p> <p>10 discussed already; is that right?</p> <p>11 A. Yes, sir.</p> <p>12 Q. Did you take any notes during that</p> <p>13 interview?</p> <p>14 A. No, sir, I did not. I typed that</p> <p>15 information up realtime.</p> <p>16 Q. I'm sorry. What information did you type</p> <p>17 up?</p> <p>18 A. The information that I asked Deputy Thompson</p> <p>19 that's found in the exhibits listed below. So to sort</p> <p>20 of describe the process, I had ArcGIS pulled up on a</p> <p>21 large screen and we sat around the conference table</p> <p>22 and just quickly visited a few points. And the text</p> <p>23 that you see I typed up realtime in the report.</p> <p>24 Q. So going to paragraph 48 it says: "What</p> <p>25 follows is an incomplete list of geocoding and census</p>	<p style="text-align: right;">Page 43</p> <p>1 W. Funderburk</p> <p>2 tract assignment errors that I have identified in my</p> <p>3 review and discussions. The exhibits referenced below</p> <p>4 are attached to my report."</p> <p>5 So could you explain what you mean by an</p> <p>6 incomplete list?</p> <p>7 A. So these were just a few examples. You</p> <p>8 know, I could have picked apart the entire dataset,</p> <p>9 but it would have taken me much longer. I could have</p> <p>10 gone through each point with Deputy Thompson. So this</p> <p>11 is essentially a subset.</p> <p>12 Q. Did you select the subset?</p> <p>13 A. I navigated -- I started in one corner of</p> <p>14 the Madison County map and just went to a couple of</p> <p>15 points and asked him about it. So I guess in terms of</p> <p>16 if I selected the subset, yeah.</p> <p>17 MR. NOBILE: I'll just object. Objection to</p> <p>18 form.</p> <p>19 Q. You say you went to a couple of points and</p> <p>20 asked Deputy Thompson about those points?</p> <p>21 A. Yes.</p> <p>22 Q. Did you ask Deputy Thompson about any points</p> <p>23 that didn't make it into this report?</p> <p>24 A. Yeah, I did. You know, I could have had 80</p> <p>25 pages of points here, you know. 80, I'm using 80 as</p>
<p style="text-align: right;">Page 44</p> <p>1 W. Funderburk</p> <p>2 an arbitrary number. But yes, some of them didn't</p> <p>3 make the cut for the report just because of the amount</p> <p>4 of time and context. So we discussed more than just</p> <p>5 these points in the report, yes.</p> <p>6 Q. But you didn't -- you didn't take any notes</p> <p>7 regarding those other points?</p> <p>8 A. No, sir. I believe I did not, no. I typed</p> <p>9 up the ones here realtime. The verbal discussion</p> <p>10 amongst the other points just kept reiterating how</p> <p>11 unreliable the dataset was and how unreliable the</p> <p>12 methodology for geocoding was. So at some point, you</p> <p>13 know, you've belabored the point of how incorrect this</p> <p>14 dataset is.</p> <p>15 Q. So when you're referring to the dataset,</p> <p>16 what specifically are you referring to?</p> <p>17 A. The compiled unique roadblock datasets and</p> <p>18 other datasets from Dr. Ricchetti's report. I believe</p> <p>19 there were three: the CAD file, the unlisted, and the</p> <p>20 handwritten notes. And I'm pretty sure that's in the</p> <p>21 report as well. I know it is in the report.</p> <p>22 Q. Right. And so the CAD file, do you</p> <p>23 understand what that is?</p> <p>24 A. I know that CAD is an acronym for</p> <p>25 computer-aided dispatch.</p>	<p style="text-align: right;">Page 45</p> <p>1 W. Funderburk</p> <p>2 Q. Do you understand that the CAD data is data</p> <p>3 created by the Madison County Sheriff's Department?</p> <p>4 A. Yeah, yeah.</p> <p>5 Q. And so you're saying that the Madison County</p> <p>6 Sheriff's Department's data is unreliable?</p> <p>7 A. No, I'm not necessarily saying that.</p> <p>8 MR. NOBILE: Objection.</p> <p>9 Q. You said earlier that the dataset was</p> <p>10 unreliable; is that right? Would you prefer to</p> <p>11 describe it some other way?</p> <p>12 MR. NOBILE: Now, just to be clear, he's</p> <p>13 proffered here as a geographer, not as a law</p> <p>14 enforcement expert. So objection to the extent that</p> <p>15 it's an overly broad and vague question.</p> <p>16 A. Could you be a little bit more specific,</p> <p>17 please?</p> <p>18 Q. So the CAD data is a dataset that was used</p> <p>19 in the course of the geocoding involved in</p> <p>20 Dr. Ricchetti's report; is that fair?</p> <p>21 A. That was listed in Dr. Ricchetti's report,</p> <p>22 yes, sir.</p> <p>23 Q. And would you consider the CAD data to be</p> <p>24 reliable data?</p> <p>25 A. For what purposes? Reliable -- it's a</p>

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2 little bit subjective.

3 MR. NOBILE: Yeah. Objection. Overly
4 broad.

5 Q. I'm using it because you used it. You said
6 the dataset was unreliable. So I guess maybe you
7 could explain what you meant in saying it's
8 unreliable.

9 A. The dataset is unreliable in several
10 different ways. The fact that there was no
11 explanation in Dr. Ricchetti's report for the
12 methodology used to create these coordinate geocoded
13 points, to assign -- again, the definition of geocode
14 in this case is assigning coordinates to some sort of
15 address information. So given that there was no
16 information on his methodology, he performed no
17 accuracy assessment and no error analysis. As a
18 geographer and a professional in the industry, I deem
19 it very unreliable. Any subsequent analysis you did
20 on top of that would be unreliable as well.

21 Q. So I was focusing specifically on the
22 underlying data, the CAD data. Would you -- so
23 focusing specifically on the CAD data, is that data
24 reliable for purposes of geocoding?

25 A. So again, that's pretty broad. And I'm not

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2 entirely sure exactly which CAD file you're referring
3 to, CAD dataset you're referring to. But the
4 intersection-level information -- for example, the
5 intersection of A and B Street -- you cannot
6 accurately, precisely, and reliably assign coordinates
7 to that position.

8 Q. Why would that be?

9 A. It's the equivalent of -- for example, it's
10 the equivalent of having a 30-meter pixel and then
11 resampling it down to a one-meter pixel. You are
12 essentially making up information. So you're taking
13 coarse location information and then creating a fine
14 GPS point for it. It can't be done accurately,
15 reliable, and repeatably -- repeatably in terms of
16 precision.

17 Q. So is the same true of a street address?

18 A. There's several preprocessing calibration
19 techniques that you would have to do. But you can
20 somewhat accurately assign coordinates to street
21 address information. But repeatably or with precision
22 is in question.

23 MR. NOBILE: And I just want to clarify.
24 When you say -- I know this is sort of obvious, but
25 this matter gets granular. When you say street

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2 address, you're talking about an address with a street
3 number as opposed to just a street name?

4 MR. RETHY: address with a street number.

5 A. A street number, 123 Street, Long Beach,
6 Mississippi, 39560, all that information. Then you
7 can accurately assign coordinates to the very center
8 of the road where that address would be. But you
9 can't do it precisely or repeatably, for example.
10 There's a difference between accuracy and precision.

11 Q. Would it be possible to similarly assign
12 coordinates to an intersection at the center of both
13 roads?

14 A. I'm sorry. Could you repeat that?

15 Q. You said you could accurately assign
16 coordinates at the very center of the road, at the
17 road where an address would be.

18 A. That's just a function of how roads are
19 created in geographic information systems. When they
20 digitized roads -- digitize being they create the
21 roads in the software -- you always digitize down the
22 center of the road. So if you have an intersection,
23 you're talking -- intersection of A and B Street, our
24 arbitrary example, you're going to have an
25 intersection of the center line of the road and a

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2 center line of the road. But that isn't taking into
3 account where any roadblock occurred in a quadrant at
4 all.

5 And it also is my understanding that, based
6 on the interview with Deputy Thompson and Lieutenant
7 Sandridge's report, the information kept in the CAD
8 file is to provide -- when they call in a roadblock,
9 it's to provide a generalized area in case, for
10 example, there's an officer down, somebody gets shot.
11 Then they know where to go get their friend in a
12 general location area.

13 Q. It seems like there's maybe two separate
14 things going on here. So one question is whether just
15 as a technical matter you can accurately assign
16 coordinates to an intersection or to the very center
17 of the intersection. And would you say that that is
18 possible or that's impossible?

19 A. It's possible. But again, you have to
20 perform several preprocessing calibration steps by,
21 for example, defining your DATUM, your coordinate
22 system, and projecting your data.

23 Q. Is it more difficult to specify --
24 accurately plot the center of an intersection than to
25 accurately plot the center of the road associated with

<p style="text-align: right;">Page 50</p> <p>1 W. Funderburk</p> <p>2 a particular street address?</p> <p>3 A. So as long as you create rules for</p> <p>4 consistency, you can plot the center of an</p> <p>5 intersection. And I would assume that -- I'm sorry.</p> <p>6 What was the second part of the question?</p> <p>7 Q. Whether that's more difficult than plotting</p> <p>8 the coordinates for a street address.</p> <p>9 MR. NOBILE: Objection, form.</p> <p>10 A. Can you restate just so I'm clear? So</p> <p>11 you're asking me if it's more difficult to assign</p> <p>12 coordinate information to a street intersection</p> <p>13 versus --</p> <p>14 Q. A street address.</p> <p>15 A. -- a street address being 123 Street, Long</p> <p>16 Beach, Mississippi, as we stated before?</p> <p>17 Q. Correct.</p> <p>18 A. The problem is the reliability and the</p> <p>19 repeatability of doing that with the street</p> <p>20 intersection data. And again, if you don't have your</p> <p>21 coordinate system defined, your dataset, as with</p> <p>22 Dr. Ricchetti's, will be riddled with topological</p> <p>23 ambiguities.</p> <p>24 Q. So are you saying that that's true of street</p> <p>25 intersection data and not of street address data?</p>	<p style="text-align: right;">Page 51</p> <p>1 W. Funderburk</p> <p>2 A. Am I saying what's true?</p> <p>3 Q. So I asked: Is it more difficult to assign</p> <p>4 a coordinate to a street intersection than to a</p> <p>5 numbered street address.</p> <p>6 And then you responded: The problem is the</p> <p>7 reliability and the repeatability of doing that with</p> <p>8 the street intersection data. And I guess that</p> <p>9 doesn't make clear to me whether that same problem</p> <p>10 also would exist with the street address data.</p> <p>11 MR. NOBILE: I'll just say objection. I can</p> <p>12 give you specifically the objection or I'll just leave</p> <p>13 objection to form.</p> <p>14 MR. RETHY: Objection to form is fine.</p> <p>15 MR. NOBILE: Okay.</p> <p>16 A. So, again, the reliability of what you do,</p> <p>17 the precision of assigning those coordinates, you have</p> <p>18 to be consistent on both ends of the dataset. So</p> <p>19 whether it's hard street addresses, as we refer to</p> <p>20 them, or if it's street intersection-level</p> <p>21 information, to precisely do that over and over and</p> <p>22 over again and have somebody be able to pick it up and</p> <p>23 repeat that is the issue, not that it's more difficult</p> <p>24 to do one or another. You just have to have a</p> <p>25 reliable methodology to do both of them. And it has</p>
<p style="text-align: right;">Page 52</p> <p>1 W. Funderburk</p> <p>2 to be consistent, which we don't have in</p> <p>3 Dr. Ricchetti's file or his report and it's nowhere</p> <p>4 evident in his dataset.</p> <p>5 Q. So you would agree that it's not more</p> <p>6 difficult to geocode a street intersection than a</p> <p>7 street address?</p> <p>8 MR. NOBILE: Objection. Asked and answered.</p> <p>9 Objection to form. You've asked him several times if</p> <p>10 it's difficult. He keeps saying the question is not</p> <p>11 difficult, it's a reliability. So I think you need to</p> <p>12 rephrase your question, because he's answered it</p> <p>13 several times.</p> <p>14 Q. I guess maybe to try to make it more clear,</p> <p>15 I'm trying to ask you to compare the difficulty of</p> <p>16 geocoding street addresses versus geocoding</p> <p>17 intersections, whether one is more difficult than the</p> <p>18 other or presents specific issues that make it</p> <p>19 impossible to do or something like that.</p> <p>20 MR. NOBILE: Same objection. Go ahead.</p> <p>21 A. Again, it's the repeatability and</p> <p>22 reliability. The consistency among both datasets,</p> <p>23 both types of address information, each present their</p> <p>24 own individual smaller issues. But as long as you</p> <p>25 have a set of rules that you have developed, a certain</p>	<p style="text-align: right;">Page 53</p> <p>1 W. Funderburk</p> <p>2 methodology that you've developed that's reliable,</p> <p>3 transparent and repeatable, then there is no</p> <p>4 difference in whether -- it's not any more difficult</p> <p>5 or any less difficult. Again, the issue is the</p> <p>6 precision and accuracy and reliability.</p> <p>7 Q. So if you go to paragraph 18 in here, you</p> <p>8 state in paragraph 18: "It is my opinion no</p> <p>9 geographer would be able to reliably, accurately, or</p> <p>10 precisely geocode the specific roadblock locations</p> <p>11 using only the name of nearby intersecting streets.</p> <p>12 This opinion is based upon my experience and my review</p> <p>13 of the documentation and data described."</p> <p>14 So is it fair to say that the opinion you're</p> <p>15 expressing is not that no geographer can geocode an</p> <p>16 intersection correctly?</p> <p>17 MR. NOBILE: Objection.</p> <p>18 A. I'm not saying they can't geocode an</p> <p>19 intersection correctly. I'm saying they can't do it</p> <p>20 with the coarse information such as intersection-level</p> <p>21 data. You can't do that accurately and precisely and</p> <p>22 repeatably.</p> <p>23 Q. You can't geocode an intersection with</p> <p>24 intersection-level data?</p> <p>25 MR. NOBILE: Objection. Paragraph 18 speaks</p>

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 2 for itself. Are you asking about what paragraph 18
 3 says or are you asking him about -- is that what
 4 you're asking him about? I just want to be clear.
 5 MR. RETHY: So I asked --
 6 MR. NOBILE: You can just say no, that's not
 7 what I'm asking him. I'm just trying to make sure if
 8 we're talking about -- for the record what we're
 9 talking about here. So you referenced paragraph 18
 10 and then you asked him something that sort of wasn't
 11 what paragraph 18 says. I mean, I don't want to
 12 engage you too much. But you sort of -- you want to
 13 read the transcript, and I've got to explain it if
 14 you're going to have more questions about my
 15 objections.
 16 MR. RETHY: I have no questions about the
 17 objection. I will read the transcript to clarify what
 18 I'm asking about.
 19 Q. So you responded saying: I'm not saying
 20 that they can't geocode an intersection correctly.
 21 I'm saying they can't do it with coarse information
 22 such as intersection-level data. You can't do that
 23 accurately and precisely and repeatably.
 24 And so I was trying to understand what you
 25 meant in that response. And that's why I asked can

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 2 you --
 3 A. Can I read it?
 4 Q. Sure.
 5 A. Okay. So the question is again?
 6 Q. So the question is: Are you saying here
 7 that you can't geocode intersection locations using
 8 only intersection-level data?
 9 MR. NOBILE: Objection to form.
 10 A. You cannot do it accurately, precisely and
 11 repeatably.
 12 Q. So whatever -- and to be clear, talking
 13 about coding an intersection location, not talking
 14 about plotting a roadblock location. So what other
 15 data would you need other than the names of the cross
 16 streets?
 17 A. Well, first, again, you would need to define
 18 your coordinate system. So if you don't have
 19 consistent coordinate systems with both datasets, one
 20 being -- so there's three types of datasets that we
 21 deal with in geography. We have point data, line data
 22 and polygon data. And so if your coordinate systems
 23 are not defined, for each individual dataset, if
 24 they're not uniform, you're going to have topological
 25 errors, meaning the points won't match up with the

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 2 lines. So I guess I'm really unclear on the
 3 specific -- if you can do it repeatably, precisely and
 4 accurately, no, you cannot do that with the
 5 information that was provided.
 6 Q. What additional information would you need?
 7 A. I can't speculate on that. I would have to
 8 actually test that and develop a methodology to do
 9 that and then retest it and continue to develop the
 10 methodology to ensure accuracy, precision and
 11 reliability. You know, we would go through several
 12 iterations of testing, cross referencing, testing, and
 13 really refining the entire methodology. But that's
 14 just, again -- that's the way that I would do it.
 15 Q. So when you -- so in paragraph 18 when you
 16 say no geographer would be able to reliably,
 17 accurately or precisely geocode the specific roadblock
 18 locations using only the name of the intersecting
 19 streets, you also mean that no geographer could
 20 reliably, accurately or precisely geocode the
 21 intersections themselves using only the name of nearby
 22 intersecting streets?
 23 A. That's not what I mean at all. I mean
 24 what's in the text.
 25 MR. NOBILE: Objection. 18 -- objection,

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 2 paragraph 18 speaks for itself. You can answer. Go
 3 ahead.
 4 A. That's not what I'm saying at all. I'm
 5 saying you cannot precisely and accurately geocode
 6 roadblock locations using only the name of nearby
 7 intersecting streets.
 8 Q. And so why is that?
 9 A. Because the roadblocks don't necessarily
 10 occur where the street intersections are all the time.
 11 Q. And what's the basis of that understanding?
 12 A. My ground truth validation through Deputy
 13 Thompson.
 14 Q. If you have the names of two intersecting
 15 streets, setting aside anything about roadblocks,
 16 could you reliably, accurately and precisely geocode
 17 the intersection of those two streets?
 18 MR. NOBILE: Asked and answered. Objection.
 19 A. So I'm clear on the question, we're talking
 20 about intersecting streets?
 21 Q. Yes.
 22 A. Again, if all of your datasets have the
 23 uniform coordinate system and you have set up certain
 24 rules and have tested it out, refined it, tested it
 25 out, that's the process it takes to repeatably assign

15 (Pages 54 to 57)

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 2 coordinate intersection-level data. One thing you've
 3 got to understand about road data or line data in the
 4 GIS is there's this thing called map accuracy versus
 5 survey grade accuracy. So map accuracy is something
 6 that GIS analysts deal with all the time, and that
 7 accuracy ranges about from 1 to 3 meters, whereas
 8 survey grade accuracy is what we deal with on a
 9 scientific basis, ranges about two centimeters of
 10 error. So without teasing out all of these little
 11 nuances, it can't be done.
 12 Q. So you just mentioned that there's different
 13 gradations of accuracy, map accuracy, accurate to
 14 within 1 to 3 meters, versus survey grade accuracy is
 15 substantially more precise?
 16 A. Accurate and precise.
 17 Q. And you said that map accuracy is something
 18 that GIS analysts deal with all the time. Could you
 19 explain what you meant by that?
 20 A. Any time you map something on a GIS, you
 21 have to be conscientious of the error that's in the
 22 dataset. So if you go on a line dataset, if you go
 23 and pick out any point on that line, right, you're
 24 going to be dealing with about, again, map accuracy
 25 error, 1 to 3 dimensional error -- not two

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 2 dimensional; up, down, left, right -- you're talking
 3 about two-dimensional error. So I guess I forgot the
 4 question. You asked me to explain it.
 5 Q. Yeah. You said it's something that GIS
 6 analysts deal with all the time.
 7 A. Yeah. When I refer to GIS analysts,
 8 typically GIS analysts are people with bachelor's
 9 degrees or associate degrees, so they get jobs
 10 practicing GIS, and that's the extent of their
 11 knowledge, is they deal with the software program
 12 only. Whereas somebody like myself, a geospatial
 13 scientist, encompasses all of that.
 14 Q. Would you agree that for different uses or
 15 applications different levels of accuracy might
 16 suffice? So I'll give an example. Like if we're
 17 trying to identify the location of this building,
 18 there would be many different coordinates, if we're
 19 dealing with increments as small as two centimeters,
 20 that would equally correctly identify the location of
 21 this building?
 22 MR. NOBILE: Objection.
 23 A. The question what --
 24 Q. That there are different levels of accuracy
 25 that are acceptable for different uses?

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 2 A. Is there?
 3 Q. Yeah.
 4 A. And your example was this building?
 5 Q. Yeah.
 6 A. So again, you would need to define that
 7 early on in the process how you identify this
 8 building. Is the GPS point or the coordinate
 9 information going to be in the center of the building
 10 footprint? Is it going to be at the front door of the
 11 building? Is it going to be at the west corner of the
 12 building? The parking lot of the building? That
 13 stuff has to be defined and consistent throughout the
 14 entire dataset, uniform.
 15 MR. NOBILE: And just for the record, I'd
 16 like to note that we're in the Hancock Bank Building,
 17 which encompasses several blocks.
 18 Q. Why does it have to be consistent through
 19 the dataset?
 20 A. Why does the point information have to be
 21 consistent throughout the dataset?
 22 Q. Correct.
 23 A. To perform any type of analysis.
 24 MR. RETHY: Let me mark this as Exhibit 2.
 25 (EXHIBIT 2, DECLARATION OF MARK SANDRIDGE,

1 W. Funderburk
 2 WAS MARKED FOR IDENTIFICATION.)
 3 MR. RETHY: So we're going to mark this at
 4 the same time as Exhibit 3.
 5 (EXHIBIT 3, DECLARATION OF RYLON THOMPSON,
 6 WAS MARKED FOR IDENTIFICATION.)
 7 Q. So Exhibit 2 is the declaration of Mark
 8 Sandridge; is that correct?
 9 A. Yes, sir.
 10 Q. And Exhibit 3 is the declaration of Rylon
 11 Thompson; is that correct?
 12 A. Yes, sir.
 13 Q. Are you familiar with both of these
 14 documents?
 15 A. No, sir, I have not reviewed the declaration
 16 of Rylon Thompson. I am familiar with the declaration
 17 of Lieutenant Sandridge.
 18 Q. So let's turn back to your report, paragraph
 19 48. So 48, subparagraph (a), states: "Exhibit 1
 20 shows several roadblock locations near the reservoir."
 21 What's your understanding of what the
 22 reservoir is?
 23 A. The reservoir, my understanding of the
 24 reservoir is it is in the map of Exhibit 1, the body
 25 of water in the image.

16 (Pages 58 to 61)

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Q. It says that this exhibit you're on, Exhibit 1, already shows several roadblock locations near the reservoir. Could you identify those locations on the exhibit?

MR. NOBILE: I'll just object. The exhibit speaks for itself. And to the extent that he can, given the degradation of the image in the printing.

A. So the image depicts point number 18 and point number 159 as well as point number 287, as listed in my report. It also depicts several other positions that are not listed in the paragraph. They are listed later on in the report.

Q. And there's -- there's an X marked on the page; is that right?

A. Yes, there is. That X depicts where the roadblock locations actually occurred versus the geocoded locations by Dr. Ricchetti that are incorrect.

Q. And who marked that X?

A. Deputy Thompson.

Q. And so the basis for your statement that that's where the roadblocks actually occurred, that's where Deputy Thompson identified them as having occurred?

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A. Yes.

Q. You state then in 48, sub (a): "MCSD does not conduct roadblocks on Breakers Lane."

Do you see that?

A. I do.

Q. What's your basis for that statement?

A. Deputy Thompson, ground truth validation, which is completely reliable in this case.

Q. And what's your basis for saying that it's reliable?

A. He had boots on the ground. He was there. He helped set up these roadblocks. And my understanding is that these roadblocks occur in the same places every year or however frequent they set up.

Q. What's the basis for your understanding that they occur in the same places every year?

MR. NOBILE: Objection. Characterization.

A. Via Lieutenant Sandridge's report as well as the testimony of Deputy Thompson.

Q. So when you say "testimony," are you referring to interview?

A. Yeah. Sorry. I apologize for the misuse of terminology.

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Q. And your basis for saying that Mr. Thompson our Deputy Thompson had boots on the ground, he was there, he helped set up these roadblocks, that's based on him telling you that that's the case; is that right?

A. Indeed, yes, sir.

Q. And did you do anything to verify that that was correct?

A. I don't necessarily need to verify that that was correct, you know. It's acceptable -- it's an acceptable technique to rely on somebody who was there and who did it.

Q. So you didn't do anything to verify that it was correct?

A. I can't go back in time and verify where the roadblocks actually occurred.

Q. But you didn't review any other documents or data or conduct any other interviews or anything, you know, not just going back in time?

MR. NOBILE: Objection, compound.

A. So I'm unclear on the question.

Q. I asked you: You didn't do anything to verify that what Mr. Deputy Thompson was saying was correct? I'm just basically asking for a yes or no.

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W. Funderburk

A. I did validate through Lieutenant Sandridge's report that they're uniform.

Q. And were you involved in drafting Lieutenant Sandridge's declaration?

A. Negative.

MR. NOBILE: Objection.

Q. So if you'd go to Mark Sandridge's declaration.

MR. NOBILE: Exhibit 2?

MR. RETHY: Correct.

Q. So if you turn to paragraph 18, could you read that paragraph?

A. Exhibit 1 shows several check points --

MR. NOBILE: Just read it to yourself?

Q. Yeah, just read it to yourself.

A. I apologize. (Document review.)

Q. Have you read paragraph 18?

A. Yes, sir.

Q. And could you also then look at Exhibit 3, Deputy Thompson's declaration.

A. Which exhibit was it?

Q. 3, paragraph 17.

A. Paragraph -- which one?

Q. 17.

17 (Pages 62 to 65)

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2 A. (Document review.) You did want me to read
3 it?

4 Q. Yeah, paragraph 17. So would you agree that
5 paragraph 17 of Deputy Thompson's declaration and
6 paragraph 18 of Lieutenant Sandridge's declaration are
7 identical?

8 MR. NOBILE: Objection. I mean the
9 declarations speak for themselves. He didn't prepare
10 them. I mean, I'm going to try to let you go forward.
11 But you know you're sort of straddling some things
12 beyond what he worked on. I mean, answer the
13 question.

14 A. And what was the question?

15 Q. Thompson paragraph 17 and Sandridge
16 paragraph 18, those paragraphs are identical?

17 A. They are very similar.

18 Q. Did you note any differences?

19 A. Not on glance, not on first glance, no, sir.
20 No, I didn't.

21 Q. And then if you go back to 48(a) of your
22 report, would you agree that that subparagraph is
23 substantially similar to paragraphs 17 and 18 in the
24 officer declarations you just reviewed?

25 A. They are similar.

1 W. Funderburk

2 Q. And so you said that you created these
3 paragraphs by typing down information in interviews --
4 in your interview with Rylon Thompson; is that
5 correct?

6 A. Yes, sir.

7 Q. Did you prepare the corresponding paragraphs
8 in those two declarations?

9 A. No, sir.

10 MR. NOBILE: Objection. He's already said
11 he didn't prepare the declarations. If you want to
12 ask Officer Thompson and officer Sandridge about their
13 declarations, you've got the methodology to do that
14 through the litigation.

15 Q. In 48(a) it states in the third sentence
16 there, it says: "Point number 18 should be 0.21 miles
17 north on Harbor Drive while point number 159 should be
18 south on Harbor Drive."

19 Did you calculate that distance, the .21
20 miles?

21 A. I did.

22 MR. RETHY: Could we take a break?

23 MR. NOBILE: Sure.

24 (A RECESS WAS TAKEN FROM 10:26 A.M.
25 TO 10:42 A.M.)

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2 BY MR. RETHY:

3 Q. Let's go to 48, subparagraph (b). Take a
4 look at that paragraph.

5 A. (Document review.)

6 Q. And so this paragraph references an
7 Exhibit 2; is that right?

8 A. Yes, sir. Now, this is just about -- this
9 is just south of Exhibit 1. Again, so you can see
10 these few points here on Spillway Road. This is just
11 a little bit shifted to the east on the map. But we
12 have the same case where the points split in Exhibit 1
13 should be one uniform point, you know, and they're
14 split in the different census tracts where they should
15 actually be at the X. Because we have the same thing
16 here.

17 Q. It says in 48(b) that a blue X shows where
18 the locations should generally be. Did you draw that
19 blue X?

20 A. Deputy Thompson marked those Xs.

21 Q. You're saying all of the marks on all of the
22 exhibits are Deputy Thompson's?

23 MR. NOBILE: Objection. You should ask each
24 one.

25 MR. RETHY: I'm planning to.

1 W. Funderburk

2 MR. NOBILE: Yeah. I mean, that's fine.

3 MR. RETHY: He said those Xs.

4 MR. NOBILE: You're talking about Exhibit 2.

5 Q. There's only one X on Exhibit 2; is that
6 right?

7 A. There's only one X on Exhibit 2.

8 MR. NOBILE: Yeah. I thought you said all
9 the Xs, referring to all of the Xs in all the
10 exhibits. But maybe I misunderstood what you were
11 asking.

12 MR. RETHY: Have no fear, we'll get to all
13 of these.

14 Q. So your report in this subparagraph (b)
15 shows where these locations should generally be.
16 Could you explain to me what you mean by "should
17 generally be"?

18 A. That was just writing, description, you
19 know. Generalization versus accuracy and precision, I
20 guess that's what I meant by that.

21 Q. You're saying that the location of the X is
22 not accurate or precise?

23 A. I'm not saying that at all.

24 Q. Are you saying it is accurate and precise?

25 A. I'm saying that that's where Deputy Thompson

<p style="text-align: right;">Page 70</p> <p>1 W. Funderburk</p> <p>2 marked that that's where they generally conduct</p> <p>3 roadblocks on that road. And again, in this case we</p> <p>4 have two points that are split when it should be one</p> <p>5 point, which illustrates, again, the issues underlying</p> <p>6 the geocoding process and the methodologies by</p> <p>7 Dr. Ricchetti and his team. It indicates there's no</p> <p>8 accuracy, precision, reliability. The same thing it</p> <p>9 illustrates in Exhibit 1.</p> <p>10 Q. So when you said generalization versus</p> <p>11 accuracy and precision, what did you mean there?</p> <p>12 A. I'm not really sure what you mean.</p> <p>13 Q. So I asked you what you meant by saying</p> <p>14 that's where the roadblocks should generally be, and</p> <p>15 then you said: That was just writing, description.</p> <p>16 Generalization versus accuracy and precision, I guess</p> <p>17 that's what I meant by that.</p> <p>18 A. Well, I wouldn't say that they're always</p> <p>19 exactly there all the time every single time. Some</p> <p>20 things -- the terminology we never use in science is</p> <p>21 always and forever, exactly. You know, because you</p> <p>22 couldn't tell me the coordinates because they don't</p> <p>23 have that information. You couldn't say that the</p> <p>24 coordinates of this roadblock are here every single</p> <p>25 time. They may be five foot right, five foot left,</p>	<p style="text-align: right;">Page 71</p> <p>1 W. Funderburk</p> <p>2 you know, wherever, that kind of generalization. Map</p> <p>3 accuracy generalization.</p> <p>4 But again, this is not -- this image is</p> <p>5 depicting the issues with the geocoding process and</p> <p>6 the unreliability of geocoded data.</p> <p>7 Q. So would you say that the locations marked</p> <p>8 with the X is accurate within five feet of the</p> <p>9 location where the roadblocks are performed?</p> <p>10 A. I'm not going to say that they're accurate</p> <p>11 within any radial distance. I'm going to say that</p> <p>12 that's where Deputy Thompson placed them and that's</p> <p>13 where they would occur, as what's in my report here.</p> <p>14 Q. And 48(b) also states: "MCSD set its</p> <p>15 roadblocks much further south on Spillway Road to make</p> <p>16 its roadblocks more effective."</p> <p>17 So what do you mean when you say that they</p> <p>18 place them in that location to make them more</p> <p>19 effective?</p> <p>20 A. Those were Deputy Thompson's words. But</p> <p>21 it's my understanding that they want to prevent any</p> <p>22 sort of -- you know, when they come around this curve,</p> <p>23 if you were to come around this curve on this image in</p> <p>24 Exhibit 2, they want to prevent anybody from stopping</p> <p>25 and turning around. So that's why they would set them</p>
<p style="text-align: right;">Page 72</p> <p>1 W. Funderburk</p> <p>2 approximately a half a mile over here.</p> <p>3 Q. But you don't have personal experience in</p> <p>4 setting up roadblocks; right?</p> <p>5 A. In the military I set up traffic control</p> <p>6 points, which is essentially roadblocks. But I don't</p> <p>7 have any experience setting up law enforcement</p> <p>8 roadblocks, you know.</p> <p>9 Q. You're not putting yourself forward as an</p> <p>10 expert in how to set up law enforcement roadblocks?</p> <p>11 A. No, sir.</p> <p>12 Q. Or whether one location would be more</p> <p>13 effective than another?</p> <p>14 A. No, sir. I guess I'm not clear on the</p> <p>15 question on that one. You're asking me --</p> <p>16 Q. So you don't claim to have any expertise in</p> <p>17 whether a roadblock location, point A versus point B,</p> <p>18 would be more effective for whatever law enforcement</p> <p>19 purpose it's serving?</p> <p>20 A. I don't claim to know exactly everything</p> <p>21 about where the placement of roadblocks should be.</p> <p>22 Q. So going down further, it says point number</p> <p>23 3 had 65 roadblocks; is that right?</p> <p>24 A. Yes, sir.</p> <p>25 Q. So do you know whether Deputy Thompson was</p>	<p style="text-align: right;">Page 73</p> <p>1 W. Funderburk</p> <p>2 present at all 65 of those roadblocks?</p> <p>3 A. I don't know. That would be a question for</p> <p>4 Deputy Thompson.</p> <p>5 Q. Do you know if he was present at more than</p> <p>6 one of those roadblocks?</p> <p>7 A. That would be a question for Deputy</p> <p>8 Thompson.</p> <p>9 Q. And so in stating that this X is where the</p> <p>10 roadblock should be, you're relying on what Deputy</p> <p>11 Thompson told you; right?</p> <p>12 A. Indeed. Well, he actually placed the X</p> <p>13 there. Which, again, is perfectly acceptable.</p> <p>14 Q. And when you say it's acceptable, are you</p> <p>15 saying it's acceptable to you? Or, I guess, who is --</p> <p>16 A. It's acceptable to me and it would be</p> <p>17 acceptable to any other expert in this situation.</p> <p>18 Q. And what are you basing that on, that</p> <p>19 statement on, that it would be acceptable to any other</p> <p>20 expert?</p> <p>21 A. So he is the one who was there, sets up the</p> <p>22 roadblocks, I believe. This is also -- so, again,</p> <p>23 revisiting some of the previous stuff that we've</p> <p>24 already talked about, it's perfectly acceptable to</p> <p>25 take his information and use it as ground truth</p>

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2 validation.

3 Q. But the validation is only as good as the
4 information he provides; right? If he said something
5 inaccurate, then your statements in reliance on it
6 would also be inaccurate; is that right?

7 MR. NOBILE: Objection.

8 A. So I'm not sure I'm clear on the question.

9 Q. So if Deputy Thompson did not accurately
10 place this X on this exhibit, then the statement in
11 your report that that's where the roadblocks generally
12 are would not be accurate; is that right?

13 A. I don't know that it wouldn't be accurate.
14 You know, you have to define in terms of accuracy what
15 you mean. What's your definition of accuracy in this
16 case? Is it one to three feet, one to three meters?

17 Q. Well, when you say a blue X shows where
18 these locations should generally be, what's your
19 definition of accuracy in making that statement?

20 A. I would extrapolate it to map accuracy in
21 this case. So within one to three meters.

22 Q. But if you received incorrect information
23 from Deputy Thompson and the roadblocks were not
24 located in that location but rather at some other
25 location on this map, say, Spillway near Breakers --

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2 A. Can you point to what you're --

3 Q. It's near the two green dots.

4 A. The geocoded locations?

5 Q. Yes. So if Deputy Thompson marked this
6 incorrectly and the actual location was near these two
7 green dots, then your statement -- Deputy
8 Thompson's -- the inaccuracy of the information he's
9 providing to you is flowing through into your report;
10 right?

11 A. Is this a hypothetical question?

12 Q. It is a hypothetical.

13 A. I mean your information is only as good as
14 your ground truth -- I mean your coordinate
15 information is going to be only as good as your ground
16 truth information.

17 MR. NOBILE: Can I help you out? Like, I
18 mean, if the question is if the blue X is in the wrong
19 spot, does that change your analysis? Is that maybe a
20 different way to state the same thing?

21 A. I mean, they wouldn't --

22 MR. NOBILE: Let him confirm.

23 MR. RETHY: Yeah, I'm trying another way.

24 MR. NOBILE: Okay. All right.

25 A. So the question again is: If the X is in

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2 the wrong spot, does that change my what?

3 Q. Would that make your statement that the blue
4 X shows where these locations should generally be,
5 would that make that statement inaccurate?

6 A. I mean I would still say the location is
7 where the X -- the one who plans and develops the
8 roadblocks, who's out there doing the roadblocks, I
9 would still say that's where the roadblocks occurred.
10 Again, we go back to the whole time machine thing.

11 And just for the record, this is, again,
12 displaying two geocoded locations split across two
13 census tracts when it should actually be one, thus
14 affecting any subsequent analysis performed by
15 Dr. Ricchetti and his team.

16 Q. So you're saying that even if you had
17 information showing that the location of the blue X
18 was objectively incorrect as a matter of historical
19 truth, you would still rely on it because you got it
20 from Deputy Thompson?

21 MR. NOBILE: Objection. Form. His
22 statement was about the two geocoded locations, not
23 the blue X. And you're asking about the blue X. Just
24 read his statement again is all I'm asking.

25 Q. So I asked if the X is in the wrong -- going

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2 back through a lot of iterations of this. The
3 question of if the blue X is in the wrong spot, does
4 that change your analysis? And it seemed like you
5 were saying no, because who could ever tell that it
6 was in the wrong spot because you don't have a time
7 machine. But I'm saying that if there was some kind
8 of objective evidence that Deputy Thompson had placed
9 the X in the wrong spot, would that alter your
10 assessment that the blue X shows the location where
11 the roadblocks generally are?

12 A. If there was objective evidence showing that
13 Deputy Thompson -- just so I'm clear. If there was
14 objective evidence showing that the blue X was in the
15 wrong spot placed by Deputy Thompson, would it change
16 my analysis?

17 Q. I think that's accurate.

18 A. It wouldn't change my overall analysis. It
19 may change for this image slightly based on the radial
20 distance of where we hypothetically say that X would
21 be replaced, you know. It doesn't affect the issues
22 with the geocoded points, though. It doesn't affect
23 the error in the geocoded locations performed by
24 Dr. Ricchetti's team.

25 Q. Let's go to the Thompson declaration. Look

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 2 at paragraph 18. If you could also look at the
 3 Sandridge declaration, paragraph 19.
 4 A. Do you want me to read them?
 5 Q. Yeah.
 6 A. So I'm reading 19 in Sandridge and reading
 7 18 in the Thompson declaration?
 8 Q. That's right.
 9 A. (Document review.)
 10 Q. Is it fair to say that paragraph 18 of
 11 Deputy Thompson's declaration and paragraph 19 of
 12 Lieutenant Sandridge's declaration are identical?
 13 MR. NOBILE: Objection.
 14 A. They're very similar.
 15 Q. Do you identify any differences?
 16 A. Not at first glance.
 17 Q. Both paragraphs reference exhibits of their
 18 own. So if you'll look at Deputy Thompson's
 19 declaration, he references an Exhibit 2 and states
 20 that he noted with a blue X where these locations
 21 should generally be.
 22 MR. NOBILE: Objection. Is there a question
 23 there?
 24 MR. RETHY: Just waiting for him to look.
 25 MR. NOBILE: I want to make sure we're

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 2 expert, so he created maps for the litigation team.
 3 So, you know, I mean, he's going to print out maps
 4 that we're going to use with our clients. You're
 5 asking him about declarations from fact witnesses that
 6 he didn't prepare. And I've allowed you to ask him
 7 about whether or not statements that he's read
 8 realtime in the middle of the deposition are identical
 9 or similar. I've tried to let that go. But, I mean,
 10 you're asking him to testify about declarations he
 11 didn't prepare.
 12 MR. RETHY: Declarations that he reviewed.
 13 Mark Sandridge's declaration, he testified he reviewed
 14 it.
 15 MR. NOBILE: Well, the declaration speaks
 16 for itself. Yeah, he reviewed it. But he's not an
 17 expert on Mark Sandridge's declaration. He's a
 18 geographer; right? I mean, I want to try to
 19 accommodate you, but you understand you're sort of
 20 asking him to testify about a declaration that he
 21 didn't prepare.
 22 MR. RETHY: I think it's --
 23 MR. NOBILE: Do you want to go off the
 24 record and talk?
 25 MR. RETHY: I don't feel the need to talk

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 2 clear.
 3 BY MR. RETHY:
 4 Q. So does the exhibit that's referenced here,
 5 does this appear to be the same as Exhibit 2 to your
 6 report?
 7 A. Yes, these appear to be the same maps upon
 8 first look.
 9 Q. So if you go to Lieutenant Sandridge's
 10 declaration, it also has an Exhibit 2. If you look at
 11 paragraph 19, Lieutenant Sandridge states: "I noted
 12 with a blue X where these locations should generally
 13 be."
 14 It's the same statement that Deputy Thompson
 15 made.
 16 And then if you look at Exhibit 2 to
 17 Lieutenant Sandridge's declaration, do you see the
 18 blue X there?
 19 A. Yes.
 20 Q. This document, is this also the same as the
 21 map that is Exhibit 2 to your report?
 22 MR. NOBILE: Objection. He did not prepare
 23 their declarations. They can speak to what's in their
 24 declarations. He's not here as a forensic expert on
 25 documents and all of that. Obviously he's the GIS

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 2 about things unless you're telling him not to answer
 3 this question.
 4 MR. NOBILE: I'm about to, yeah. Because
 5 you're asking him to testify about declarations he
 6 didn't prepare. No more than I'm going to go ask your
 7 expert witnesses to testify about things they didn't
 8 do. You know, he was designated for a specific
 9 purpose. He didn't say that he was an expert on Rylon
 10 Thompson and Mark Sandridge's declaration. Nothing in
 11 his report says that he is. You can see his scope of
 12 assignment. So, I mean, we didn't proffer him for
 13 that purpose. And to the extent you're trying to
 14 convert him into that, I'm going to object, yeah.
 15 You've got his report. You're welcome to go
 16 through that, frontwards and backward. You've got his
 17 report. But you're trying to get him -- no more than
 18 I'm going to have him testify about, you know, the
 19 extent of Dr. Guha's declaration. He didn't prepare
 20 Dr. Guha's declaration. He's no more an expert --
 21 he's no more proffered on that than he is on some of
 22 these things, on the context of what factual claims
 23 that Mark Sandridge makes.
 24 MR. RETHY: If they're materials that he
 25 relied on, it seems like I can ask him about them.

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 2 MR. NOBILE: Yes. He talked to Officer
 3 Thompson, yeah.
 4 MR. RETHY: And said he reviewed --
 5 MR. NOBILE: In preparation of the
 6 deposition.
 7 BY MR. RETHY:
 8 Q. You testified earlier that you reviewed
 9 Lieutenant Sandridge's declaration, and that was
 10 something that you used to corroborate or verify
 11 information that you had received from Deputy
 12 Thompson. Is that right or is that wrong? He seems
 13 to be saying it's wrong.
 14 A. I'll have to double check the transcripts to
 15 see exactly what I said. But I did review Lieutenant
 16 Sandridge's report.
 17 Q. Solely in preparing for your deposition or
 18 in --
 19 A. Yes.
 20 Q. So you didn't review Lieutenant Sandridge's
 21 declaration in preparing your report?
 22 A. In preparing my report?
 23 Q. Correct.
 24 A. No, no, sir.
 25 MR. NOBILE: His report doesn't say that.

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 2 MR. RETHY: He testified earlier that that
 3 was a way to verify what he got from Deputy Thompson.
 4 MR. NOBILE: His testimony speaks for
 5 itself. I'm not going to sit here and keep rehashing
 6 everything in realtime. I mean, I've made my
 7 objection. You're trying to ask him about two
 8 different declarations that were published on the same
 9 date. So, you know, he's an expert on geography. Ask
 10 him about the contents of his report, and we'll settle
 11 in and continue to go through the deposition. But,
 12 you know, that's the purpose of which he's been
 13 proffered for.
 14 MR. RETHY: Let's go off the record for a
 15 second.
 16 MR. NOBILE: Okay.
 17 (A DISCUSSION WAS HELD OFF THE RECORD.)
 18 (REQUESTED PORTION OF RECORD READ.)
 19 BY MR. RETHY:
 20 Q. So I'd just like to clarify. When you made
 21 that statement, were you referring to reports from
 22 Lieutenant Sandridge that you reviewed in preparing
 23 your report or just materials that you reviewed after
 24 you submitted your report in preparation for this
 25 deposition?

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 2 MR. NOBILE: And by reports, just to be
 3 clear for the record, we're talking about Sandridge's
 4 declaration?
 5 MR. RETHY: I don't know what he's talking
 6 about when he says reports.
 7 MR. NOBILE: Come on, Isaac. I mean, you're
 8 going back and rehashing all of this. I'm just trying
 9 to make it clear on the record. There's only one
 10 declaration here. I mean, we can keep rehashing this
 11 all day. I'm happy to keep arguing. But I'm just
 12 trying to clarify the record.
 13 Ask him the question again. I just made
 14 what I thought was just a clarification for the
 15 record, and we've got to argue about what we're
 16 talking about.
 17 MR. RETHY: So do we now have to go through
 18 the whole process of having the court reporter read
 19 all of that into the record again?
 20 MR. NOBILE: Can we just go off the record
 21 for a second, please?
 22 (A DISCUSSION WAS HELD OFF THE RECORD.)
 23 BY MR. RETHY:
 24 Q. In the testimony that was just read back you
 25 referred to reports that you reviewed from Lieutenant

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 2 Sandridge. Were you referring solely to Lieutenant
 3 Sandridge's declaration in that statement?
 4 A. I was. I misspoke by calling it a report.
 5 I'm not familiar with all the terminology.
 6 Q. And so you didn't review any other sort of
 7 documents prepared by Lieutenant Sandridge other than
 8 his declaration?
 9 MR. NOBILE: Objection. I'll just make it
 10 for the record. Objection. His report clarifies what
 11 he looked at.
 12 Answer the question, please.
 13 A. Just for my clarity, were you referring to
 14 reviewing the declaration for what cause?
 15 Q. Did you review Mark Sandridge's declaration
 16 before you submitted your report?
 17 A. I can't recall off the top of my head.
 18 MR. RETHY: Let's go off the record again.
 19 (A DISCUSSION WAS HELD OFF THE RECORD.)
 20 BY MR. RETHY:
 21 Q. So earlier we were talking about what you
 22 did to verify the analyses presented in your report.
 23 And I asked you whether you took any steps to verify
 24 that the information that Deputy Thompson gave you was
 25 correct. And you stated that you did validate through

22 (Pages 82 to 85)

<p style="text-align: right;">Page 86</p> <p>1 W. Funderburk</p> <p>2 Lieutenant Sandridge's report, meaning declaration,</p> <p>3 that they're uniform. Do you recall that testimony?</p> <p>4 A. I believe it was earlier this morning. Yes.</p> <p>5 Q. So when you said that, did you validate</p> <p>6 through Lieutenant Sandridge's declaration that the</p> <p>7 locations were uniform while you were preparing your</p> <p>8 report or only later, after you had already submitted</p> <p>9 your report?</p> <p>10 A. So when I cross-referenced them, it was more</p> <p>11 of just a skim, a skim-through just to double check.</p> <p>12 It wasn't like I in-depth read Lieutenant Sandridge's</p> <p>13 report. I just wanted to make sure that the maps</p> <p>14 coincided with each other, that they were at least</p> <p>15 uniform, you know, just for my own personal</p> <p>16 validation. But in preparation for the case, all of</p> <p>17 the documents I reviewed are listed in appendix B that</p> <p>18 can be found in paragraph 12 as listed here in my</p> <p>19 report.</p> <p>20 Q. So when you said that you did do this quick</p> <p>21 skim, was that before you submitted your report?</p> <p>22 A. Yeah, yes -- no, no, no, no. The documents</p> <p>23 I reviewed to prepare this report are listed in</p> <p>24 appendix B. The quick skim, I guess -- and I don't</p> <p>25 recall the specific date that I looked at Lieutenant</p>	<p style="text-align: right;">Page 87</p> <p>1 W. Funderburk</p> <p>2 Sandridge's report. So I can't say yes or no on that.</p> <p>3 I don't know. But I can tell you the documents that I</p> <p>4 reviewed in preparation for the work that I did are</p> <p>5 listed in my report in appendix B.</p> <p>6 Q. So you previously testified that you</p> <p>7 validated through Lieutenant Sandridge's</p> <p>8 declaration -- sorry. I'll stop now. But if you</p> <p>9 could, try to remember when you're talking about</p> <p>10 Lieutenant Sandridge's declaration to call it a</p> <p>11 declaration rather than a report.</p> <p>12 A. I'm sorry.</p> <p>13 Q. It seems like that will reduce the lawyer's</p> <p>14 agitation in some meaningful way.</p> <p>15 A. Sorry. Did I do it again?</p> <p>16 MR. NOBILE: You did. But I think the</p> <p>17 record is clear at this point.</p> <p>18 Q. So when you said that you validated</p> <p>19 information in your report by reviewing Lieutenant</p> <p>20 Sandridge's declaration, did you do that as part of</p> <p>21 drafting your report or did you do that only after</p> <p>22 your report had been submitted in preparation for this</p> <p>23 deposition?</p> <p>24 A. Again, you know, everything I reviewed is</p> <p>25 listed in appendix B found in paragraph 12 in</p>
<p style="text-align: right;">Page 88</p> <p>1 W. Funderburk</p> <p>2 preparation for my report -- or the work I conducted</p> <p>3 for this report.</p> <p>4 Q. And is Lieutenant Sandridge's declaration</p> <p>5 listed there?</p> <p>6 A. I don't believe it is. No, it is not.</p> <p>7 Q. So you did not review Lieutenant Sandridge's</p> <p>8 declaration in preparing your report?</p> <p>9 A. That's correct. Yes. No, sir -- yes, that</p> <p>10 is correct. I did not review the declaration.</p> <p>11 Q. And so any validation of the information in</p> <p>12 the report that you would have done using Lieutenant</p> <p>13 Sandridge's declaration would have occurred after you</p> <p>14 finalized and signed the report; is that correct?</p> <p>15 A. Correct. Yes. But again, that doesn't</p> <p>16 change the fact that you can take Deputy Thompson's</p> <p>17 information as ground truth information. You can</p> <p>18 still use that.</p> <p>19 Q. I was just trying to clear up that earlier</p> <p>20 testimony to understand when you've looked at</p> <p>21 Lieutenant Sandridge's declaration.</p> <p>22 A. I understand.</p> <p>23 Q. That's pretty much it for this line of</p> <p>24 questioning.</p> <p>25 So let's go to your report, paragraph 48,</p>	<p style="text-align: right;">Page 89</p> <p>1 W. Funderburk</p> <p>2 subparagraph (c). If you would just review that</p> <p>3 quickly.</p> <p>4 A. (b) you said?</p> <p>5 Q. (c).</p> <p>6 A. (c)?</p> <p>7 Q. Correct.</p> <p>8 A. Sorry. (Document review.)</p> <p>9 Q. So this states that: "Exhibit 3 shows</p> <p>10 roadblock locations numbers 141 and 215. They are</p> <p>11 plotted on U.S. Highway 51 near Natchez Trace. Both</p> <p>12 of these locations are incorrectly shown to be in the</p> <p>13 middle of Highway 51. The actual physical location</p> <p>14 should be moved to near the information cabin on the</p> <p>15 Natchez Trace. The proper location for these</p> <p>16 roadblocks has been marked with a blue X on</p> <p>17 Exhibit 3."</p> <p>18 So turning to Exhibit 3, who marked the blue</p> <p>19 X?</p> <p>20 A. Again, Deputy Thompson.</p> <p>21 Q. And can you identify the information cabin</p> <p>22 that's referenced in your report?</p> <p>23 A. Yes, sir. From the information Deputy</p> <p>24 Thompson provided me, I can.</p> <p>25 Q. Could you specify where in relation to the</p>

<p style="text-align: right;">Page 90</p> <p>1 W. Funderburk</p> <p>2 blue X it is?</p> <p>3 A. Do you want me to point to it?</p> <p>4 Q. Sure.</p> <p>5 MR. NOBILE: Do you want to mark it for the</p> <p>6 exhibit?</p> <p>7 A. How do you want me to mark it? Just circle?</p> <p>8 Q. Yes.</p> <p>9 A. Yes. I messed it up. Sorry. (Marking.)</p> <p>10 MR. NOBILE: That's all right.</p> <p>11 Q. So if you'd show me what you've marked?</p> <p>12 A. (Indicating.) I had it upside down.</p> <p>13 Apologies.</p> <p>14 Q. Did Deputy Thompson identify that structure</p> <p>15 or area of the map or whatever it might appear to you</p> <p>16 as an information cabin?</p> <p>17 A. Did he point it out? Is that what you're</p> <p>18 asking me?</p> <p>19 Q. Yes.</p> <p>20 A. Yes, sir.</p> <p>21 Q. And that's the basis on which you're</p> <p>22 identifying it, is your recollection of your interview</p> <p>23 with Deputy Thompson?</p> <p>24 A. And then also those are his words of</p> <p>25 location in terms of he told me where the X was and</p>	<p style="text-align: right;">Page 91</p> <p>1 W. Funderburk</p> <p>2 used the term where the information cabin is, and I</p> <p>3 asked him to point it out, and he pointed it out for</p> <p>4 me -- to point out the information cabin, just to</p> <p>5 clarify.</p> <p>6 Q. So this refers to roadblock location numbers</p> <p>7 141 and 215; is that right?</p> <p>8 A. Yes, sir.</p> <p>9 Q. And then the roadblock locations, those are</p> <p>10 in the exhibit that is described as compiled unique</p> <p>11 roadblocks; is that correct? It should begin on page</p> <p>12 24.</p> <p>13 MR. NOBILE: Just to be clear for the</p> <p>14 record, exhibit to your report, not an exhibit --</p> <p>15 MR. RETHY: Exhibit to your report.</p> <p>16 Q. It would be page 24, according to the header</p> <p>17 information.</p> <p>18 A. The question was, again, these roadblocks</p> <p>19 are attained from the compiled unique roadblock?</p> <p>20 Q. Yes.</p> <p>21 A. Yes.</p> <p>22 Q. When you say 141, that would be 141 in the</p> <p>23 left-most column on this --</p> <p>24 A. Yes, sir.</p> <p>25 Q. I guess it's appendix D to your report</p>
<p style="text-align: right;">Page 92</p> <p>1 W. Funderburk</p> <p>2 specifically.</p> <p>3 A. Yes, sir.</p> <p>4 Q. And so there's two dots on the map that is</p> <p>5 Exhibit 3; correct? One is blue and one is green?</p> <p>6 A. It appears to be two dots, but there could</p> <p>7 be another dot -- they could be stacked here. But the</p> <p>8 resolution of this image -- and I am red/green</p> <p>9 colorblind.</p> <p>10 MR. NOBILE: Sorry. I guess that's not</p> <p>11 funny.</p> <p>12 A. Yeah. There appears to be two dots here,</p> <p>13 yes, sir.</p> <p>14 Q. All right. And there's one -- I guess could</p> <p>15 you describe the locations of the two dots?</p> <p>16 A. So the blue dot is on the Natchez Trace</p> <p>17 Parkway. And I believe that is an overpass. But I</p> <p>18 can't see the number. It's in a color I can't see.</p> <p>19 And the green dot is in the middle of U.S. Highway 51.</p> <p>20 I can't make out the numbers for them in this image.</p> <p>21 Q. Are either of them at or near an</p> <p>22 intersection?</p> <p>23 A. Define an intersection for me real quick.</p> <p>24 MR. NOBILE: Object to the form. Go ahead.</p> <p>25 A. Are either of these on an intersection? Is</p>	<p style="text-align: right;">Page 93</p> <p>1 W. Funderburk</p> <p>2 that the question?</p> <p>3 Q. Yes.</p> <p>4 A. They appear to be around an intersection.</p> <p>5 This bottom one appears to be around a three-way</p> <p>6 intersection. And again, I'm judging from this image,</p> <p>7 which is very grainy. And the top one -- the blue</p> <p>8 one, pardon me -- appears to be on an overpass.</p> <p>9 Q. How can you tell that that's an overpass?</p> <p>10 A. You have a two-lane highway running in the</p> <p>11 direction, and it would not -- I'm going off of memory</p> <p>12 on this one. I can't be for certain it's on an</p> <p>13 overpass. And I can't be for certain that there's not</p> <p>14 two dots stacked down here either, based on this</p> <p>15 image.</p> <p>16 Q. So look at appendix D, row 141. Could you</p> <p>17 read what's in the column "clean address" for row 141?</p> <p>18 A. Row 141, the clean address column states:</p> <p>19 "Highway 51 and Natchez Trace, Madison County,</p> <p>20 Mississippi."</p> <p>21 Q. And if you go back to the exhibit? So you</p> <p>22 can see that the road you described is a two-lane</p> <p>23 highway. That's Highway 51; right?</p> <p>24 A. Yes, sir. That's the label on the road.</p> <p>25 Q. And the road that cuts across it is labeled</p>

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 2 Natchez Trace Parkway; is that right?
 3 A. Yes, sir.
 4 Q. And that dot there is plotted at the
 5 intersection of those two roads; is that right?
 6 A. Which one? Excuse me. Neither one of them
 7 are plotted directly on the intersection.
 8 Q. If I can't refer to them with color --
 9 A. I can see the blue.
 10 Q. It's the blue dot.
 11 MR. NOBILE: Can we just stipulate that's
 12 dot 141? Would that be helpful?
 13 MR. RETHY: Yes.
 14 MR. NOBILE: Okay. Just call it 141.
 15 THE WITNESS: Can I write on it?
 16 MR. NOBILE: Yeah. Write 141. And the one
 17 below it is --
 18 MR. RETHY: 250.
 19 THE WITNESS: Poor color choice.
 20 MR. NOBILE: The one below it -- I don't
 21 know which one that is.
 22 MR. RETHY: The only ones referred to in
 23 Exhibit 3 are 141 and 250.
 24 MR. NOBILE: The one that you're talking
 25 about is 141.

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 2 Trace; is that correct?
 3 A. It also specifies Natchez Trace RID.
 4 Q. Right. Do you have an understanding of what
 5 RID is?
 6 A. I do not.
 7 Q. Do you know which area of Madison County is
 8 projected in Exhibit 3 to your report?
 9 MR. NOBILE: Objection, form.
 10 A. Projected may not be the correct terminology
 11 in my sense.
 12 Q. Represented. Whatever term you'd like.
 13 A. Do I know which area? Yes. We're looking
 14 at Highway 51 and Natchez Trace Parkway.
 15 Q. Do you know whether that's in a city, in or
 16 around a particular city in Madison County?
 17 A. Not from this image, no, sir.
 18 Q. Is there any way -- sorry. Were you going
 19 to say something?
 20 A. I was just going to restate I'm pretty sure
 21 that this Natchez Trace Parkway is an overpass. And
 22 just judging from my image interpretation, skill set,
 23 if you look at the shadows from the trees as well as
 24 right where that overpass is, it's casting a shadow
 25 onto Highway 51. So not just from memory am I

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 2 MR. RETHY: Yes.
 3 A. We're talking about 141?
 4 Q. Yes. So I had said -- I had asked you
 5 whether this appeared to be plotted at the
 6 intersection of U.S. Highway 51 and Natchez Trace
 7 Parkway, and you said something to the effect that
 8 either of them are plotted directly on the
 9 intersection. And I guess I would like to understand
 10 what you mean by that.
 11 A. Well, first, I believe that this Natchez
 12 Trace Parkway is an overpass over this Highway 51.
 13 And that's point 141 that I'm referring to. So I
 14 wouldn't technically call that an intersection.
 15 And 215 appears at this scale to be slightly
 16 off to the left of the intersection or to the west of
 17 the intersection just a little bit.
 18 Q. But it's near the intersection if not, in
 19 your opinion, at the precise center of the
 20 intersection?
 21 A. Correct.
 22 Q. So going back to 141, the data of the
 23 cleaned address information did specify Highway 51 and
 24 Natchez Trace. And then if you look at the original
 25 address data, it also specifies Highway 51 and Natchez

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 2 remembering this is an overpass. It also appears to
 3 be an overpass from an image interpretation
 4 standpoint.
 5 Q. Based on the information in row 141, would
 6 you have a basis for, simply based on that
 7 information, excluding what Deputy Thompson told you,
 8 would you have a basis for identifying the location of
 9 the roadblock as being at the blue X rather than at
 10 the plotted point?
 11 A. Is what you're asking me -- are you asking
 12 me if the roadblocks are at the blue X versus the
 13 geocoded points from Dr. Ricchetti?
 14 Q. I'm asking if you could make that
 15 determination based on the information contained in
 16 your appendix D.
 17 A. So just to clarify so I'm understanding the
 18 question, you're asking me if the blue X can be
 19 determined from the information listed in row 141 of
 20 the compiled unique roadblocks?
 21 Q. Correct.
 22 A. The position of the roadblock, negative,
 23 cannot be determined from the coordinates of 141.
 24 Again, these are intersection-level information and in
 25 this case it's not even an intersection. It's not

25 (Pages 94 to 97)

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even a true intersection the way that I would define an intersection. This is an overpass. And you cannot accurately determine where roadblocks come -- where roadblocks fall out from intersection-level information.

Q. And so your last statement that you can't accurately determine where roadblocks fall out from intersection-level information, is that based on your interview with Deputy Thompson?

A. No. That's based on my expertise in geography.

Q. Could you explain that? I don't really understand what you mean by that.

A. What portion are you unclear on? Please specify so I can break it down.

Q. So did you learn anything about police roadblocks in your study of geography?

A. Negative.

Q. And so your opinion that they can't be located based on intersection information is based on some fact or opinions coming from elsewhere other than your study of geography?

A. No. So again, we're taking -- I go back to my 30-meter pixel example being resampled to the

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one-meter pixel example. You cannot take coarse resolution location information and define it and reduce it down to fine positional information. On top of that, the fact that the roadblocks didn't actually occur in these spots and there's no notes stating the radial distance away from these intersections or locations kept in the CAD report. Further -- it further displays how inaccurate the geocoding of Dr. Ricchetti's team -- him, himself, and his team -- is. There's no secondary note information. If they said -- and this is just an arbitrary example. If they said intersection of A and B Street, our roadblock is set up in the northwest quadrant 52 meters east of the intersection, that's the kind of information that you would need to even come close to reproducing where the roadblock occurred, which we don't have, which they don't have.

Q. So you say if they said at the intersection of A and B Street a roadblock is set up in the northwest quadrant, et cetera, the they you're referring to would be the Madison County Sheriff's Department?

A. Correct. And I think it all goes back to there's just not fine resolution address information

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kept in computer-aided dispatch that allows the precise and accurate geocoding of points. And if it is done, again, you would need to do some sort of error analysis and accuracy assessment to compensate or understand exactly how far off your dataset is in each individual point and the dataset as a whole.

Q. And would there be -- and other than -- other than interviewing members of the sheriff's department, are there any other methods of error analysis or accuracy assessment that could be used to perform this exercise?

A. Is there any other way to determine where the roadblock section occurred? Is that what you're asking?

Q. Yes.

A. Aside from firsthand account witness information?

Q. Yes.

A. If they documented GPS coordinates of each roadblock over time, then we could then go back and revisit the exact GPS coordinates. But again, that's sort of a speculative method, and that's not what -- I was not hired to develop a method to compute an accuracy or an error in this dataset.

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Q. Based solely on the information in 141 and excluding information attained from Deputy Thompson, would it be your opinion that placement of point 141 is inaccurate?

A. Yes.

Q. And could you explain that?

A. Why 141 is inaccurate?

Q. Right.

A. Again, we're taking intersection-level data, intersection-level location information and creating a fine geospatial point. So we're taking coarse data, resampling it down to very fine data, which cannot be done accurately, precisely and reliably.

Q. Is it your understanding that this mapping of coordinates was done in connection with analyzing which census tracts different plotted points fell into?

A. Just so I'm clear on the question, it's my understanding that -- say it one more time.

Q. That the plotting of coordinates that was done in Dr. Ricchetti's report was done in order to assign those different locations to specific census tracts?

A. You know, I'm not sure I'm 100 percent clear

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2 on the question. Just so I'm clear --

3 Q. What's your understanding of why this
4 coordinate mapping exercise was performed in
5 Dr. Ricchetti's report?

6 A. You know, I really can't attest to why --
7 too much about Dr. Ricchetti's report because my job,
8 again, was to distill down or just determine if the
9 geocoding was done correctly. So, I mean, I can't
10 really speculate on what Dr. Ricchetti did because
11 there's such limited information in his report.

12 Q. So going back to Exhibit 3 -- it's the one
13 we were just looking at.

14 A. Okay.

15 Q. So do you know whether the area of Madison
16 County that's depicted on Exhibit 3 falls within one
17 census tract or multiple census tracts?

18 A. From this image it appears that there's a
19 label for a census tract number here. It looks like
20 301.05. Is that correct? Right there just south of
21 the Natchez Trace Parkway by Cherry Circle. Is that
22 301.05? Am I reading that correctly?

23 Q. You may be. I also can barely read it.

24 MR. NOBILE: Are you talking about --

25 A. So for the purpose of this map, I can't tell

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2 if either one of these points fall out in any one
3 census tract or another in this image because there's
4 no -- there's not enough information in this image.

5 Q. So going back to what we were discussing,
6 141, and your criticisms of the geocoding at that
7 point, if you recall just a few minutes ago, you said
8 your objection was that it was plotted in a manner
9 that was too precise based on the coarse data
10 available?

11 A. For 141?

12 Q. Correct.

13 A. Again, I believe that's intersection-level
14 information. And we covered that the compiling of the
15 roadblocks. And you cannot take coarse level -- for
16 example, intersection-level information, you can't
17 take coarse location information and distill it down
18 to a fine point without any extra information.

19 Q. So would it be -- would that issue have been
20 resolved if the size of the point had been made
21 larger?

22 A. No, sir.

23 Q. And why not?

24 A. Just because you make the size of the point
25 larger doesn't give you more accurate and precise

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2 coordinates. And you're just covering more area.

3 Q. All right. But I was understanding your
4 objection to be that the intersection takes up a
5 certain amount of space, and if you just have the
6 information about -- which is at the intersection
7 level, you can't determine on that basis anything
8 finer like within the intersection. Like it could be
9 the northwest side or the southeast side, and there's
10 no information to choose between those two. Is that
11 an incorrect understanding of your objection?

12 A. I'm not clear on what it is you're asking.

13 Q. So you're saying the data is too coarse to
14 turn it into like a fine point; is that right?

15 A. Correct.

16 Q. And I guess this gets back to earlier we
17 were talking about whether it was possible to
18 accurately plot intersection locations ever. And I
19 believe your answer was that that would be possible if
20 you had the correct methodology; is that right? Or
21 are you saying now that it's just inherently
22 impossible to accurately plot a location based solely
23 on street intersections?

24 A. So if you look in the X and Y attribute
25 table of the compiled unique roadblocks, you'll see

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2 coordinate information that runs out eight decimal
3 places. So that's considered very fine and precise
4 resolution coordinate information, eight decimal
5 places out, you know. You cannot assign that level of
6 precision coordinates to coarse level location
7 information, such as intersection-only information.
8 If you had more information and developed a
9 methodology, there could be a possibility. But I
10 can't speculate on if it is possible to do that
11 because it would be a test and refine that method and
12 a test and refine that method to ensure repeatability.
13 We don't have any information in Dr. Ricchetti's
14 report on what they did, how they came up with these
15 coordinates, you know. He didn't provide any type of
16 accuracy assessment nor error analysis. So I'm really
17 not sure what the lack of understanding is about that,
18 in my opinion. You know, I don't understand. So
19 again, I go back to the 30-meter pixel of an image.
20 You can't resample large information to smaller
21 information without losing information about that data
22 or making information up.

23 Q. So if you were to plot a set of coordinates
24 based on intersection information, would you -- I
25 guess would you ever agree to do that? Or would you

27 (Pages 102 to 105)

<p style="text-align: right;">Page 106</p> <p>1 W. Funderburk</p> <p>2 view that as inherently unacceptable?</p> <p>3 A. That's kind of a broad question. I don't</p> <p>4 know that I would ever do it for my research, again,</p> <p>5 because we're talking about the center lines of the</p> <p>6 road. We go back to how roads are created in a GIS,</p> <p>7 digitizing down the center line of the road. So you</p> <p>8 have X and Y amount of wiggle room on either side</p> <p>9 that's unaccounted for. So you already have inherent</p> <p>10 error in the dataset. That's that map accuracy thing</p> <p>11 that we were talking about.</p> <p>12 I guess a good example, too, would be also</p> <p>13 going back to the number of decimal places behind the</p> <p>14 latitude and longitudinal coordinates. Eight decimal</p> <p>15 places, it slightly varies latitudinally because, as</p> <p>16 you move north or south of the equator, your grid</p> <p>17 squares -- your latitudinal grid squares get smaller.</p> <p>18 But that type of precision is rivaling survey-grade</p> <p>19 precision. And you have to have an immense amount of</p> <p>20 infrastructure and very expensive gear to tie into</p> <p>21 that GPS infrastructure to get this type of</p> <p>22 information accurately and precisely.</p> <p>23 You know, when I go and I'm doing research in</p> <p>24 the marsh measuring surface elevation tables, we carry</p> <p>25 our decimal places out nine, ten places. But we have</p>	<p style="text-align: right;">Page 107</p> <p>1 W. Funderburk</p> <p>2 the geospatial and geodetic infrastructure throughout</p> <p>3 the state, the CORS network, and the high precision</p> <p>4 GPS gear to get that kind of information with the</p> <p>5 small amount of error that I referenced earlier, the</p> <p>6 two centimeters of error. So getting this kind of</p> <p>7 information, this kind of precise information, from a</p> <p>8 GIS is a no go.</p> <p>9 Q. So earlier you mentioned that in plotting</p> <p>10 street addresses, GIS would assign a point that was</p> <p>11 like in the center of the road in front of the</p> <p>12 address?</p> <p>13 A. I think that's what I said. I can't</p> <p>14 remember.</p> <p>15 Q. Is it correct?</p> <p>16 A. So it's hard to speculate on exactly what</p> <p>17 GIS would do without looking at the underlying code</p> <p>18 used in the geocoding feature, the python scripts.</p> <p>19 That's the computer language used in GIS. So without</p> <p>20 modifying those scripts and keeping some sort of</p> <p>21 uniform placement of points, it would be inconsistent</p> <p>22 throughout the geocoding function. For example, we go</p> <p>23 back to the building at Hancock Bank. If I don't have</p> <p>24 a modification of the geocoding script saying, you</p> <p>25 know, this address in terms of -- when I say address,</p>
<p style="text-align: right;">Page 108</p> <p>1 W. Funderburk</p> <p>2 I mean 123 Street, Long Beach, Mississippi, the full</p> <p>3 address in the common sense of the term -- it would</p> <p>4 perhaps plot a point in the center of the road right</p> <p>5 in front of the house, but then it could also plot a</p> <p>6 point in the center of the house or on the corner of</p> <p>7 the house, you know. And without reviewing the</p> <p>8 scripts that they used in ArcGIS which were not</p> <p>9 provided in Dr. Ricchetti's report, we can't know</p> <p>10 anything about how their methods were done or</p> <p>11 developed. So again, it makes his methods unreliable</p> <p>12 and it makes his datasets unreliable and any</p> <p>13 subsequent statistical analysis unreliable.</p> <p>14 Q. So when ArcGIS plots a street address in the</p> <p>15 center of a house, say, or in the center of the road</p> <p>16 in front of the house, that suffers from the same</p> <p>17 coarse data to precise data issue that you identified</p> <p>18 with respect to intersection data; right?</p> <p>19 A. Not only does it suffer from the coarse</p> <p>20 information data -- well, and let me specify.</p> <p>21 Intersection-level data is much more coarse than hard</p> <p>22 address information in the sense of the common term</p> <p>23 that we discussed earlier. So you would be riddled --</p> <p>24 you would be weary of those ambiguities, but also you</p> <p>25 would still have to develop a method and rules to be</p>	<p style="text-align: right;">Page 109</p> <p>1 W. Funderburk</p> <p>2 consistent throughout each assignment of coordinate</p> <p>3 information. Does that make sense? I want to try to</p> <p>4 explain it as clear as possible.</p> <p>5 Q. So would you agree that plotting a street</p> <p>6 address suffers from the same coarse data to precise</p> <p>7 data issue as plotting an intersection address?</p> <p>8 A. Negative, I would not agree with that.</p> <p>9 Q. And why not?</p> <p>10 A. Because you're dealing with finer resolution</p> <p>11 data with hard street information versus the more</p> <p>12 coarse resolution intersection-level information.</p> <p>13 Q. And why is street address information</p> <p>14 necessarily more precise?</p> <p>15 A. You just have more information about the</p> <p>16 location.</p> <p>17 Q. In what respect?</p> <p>18 A. You have a hard address, 123 Street, Long</p> <p>19 Beach, Mississippi, 39560. So then in turn ArcGIS has</p> <p>20 more information to determine rather than less</p> <p>21 information to determine.</p> <p>22 Q. What I'm still not understanding is why</p> <p>23 that's inherently more precise than intersection</p> <p>24 information featuring the same level of detail.</p> <p>25 A. They don't have the same level of detail.</p>

<p style="text-align: right;">Page 110</p> <p>1 W. Funderburk</p> <p>2 Hard address information is finer resolution</p> <p>3 information than intersection-level information.</p> <p>4 Q. So you're saying that it's impossible to</p> <p>5 define the boundaries of an intersection in a way that</p> <p>6 isn't true for the boundaries of a street address?</p> <p>7 MR. NOBILE: Objection, form.</p> <p>8 A. I'm not saying it's impossible. Again, if</p> <p>9 you go through your preprocessing calibration</p> <p>10 techniques of defining your datum, your coordinate</p> <p>11 system, and projecting your data, you can to some</p> <p>12 degree of accuracy calculate the geometry of a hard</p> <p>13 address to some degree of reliability as well.</p> <p>14 More -- excuse me. I didn't mean to interrupt you.</p> <p>15 Q. Is the same true of plotting -- when you say</p> <p>16 hard address, you mean street address?</p> <p>17 A. Like 123 street. Just so we're clear, the</p> <p>18 hard address I refer to is that type of address, 123</p> <p>19 Street, Long Beach, Mississippi, 39560.</p> <p>20 Q. So I would ask whether it's not possible</p> <p>21 using ArcGIS to accurately identify intersections as</p> <p>22 opposed to street addresses. It seemed like you</p> <p>23 answered about street addresses just now but not about</p> <p>24 intersections.</p> <p>25 A. And so what was the question about</p>	<p style="text-align: right;">Page 111</p> <p>1 W. Funderburk</p> <p>2 intersections?</p> <p>3 Q. I guess I'll try to take a different tactic,</p> <p>4 because I'm at some level of misunderstanding here, I</p> <p>5 think. It seems to me -- I'm not an expert in this --</p> <p>6 that an intersection describes a specific plot of land</p> <p>7 in the world in the same way that a street address</p> <p>8 does. And so it seems like, while you could have</p> <p>9 issues with both, like you have a street address where</p> <p>10 there's another street with the same name and another</p> <p>11 address with the same number, so how do you choose</p> <p>12 between two? You have a similar issue with</p> <p>13 intersections. But it seems like they are both --</p> <p>14 like they don't move around, they're both sort of</p> <p>15 fixed plots of land in space. And so I'm just having</p> <p>16 a hard time understanding why there's some material</p> <p>17 distinction in the accuracy or reliability of locating</p> <p>18 an intersection versus what you're calling a hard</p> <p>19 address or street address with street number.</p> <p>20 MR. NOBILE: Objection, form.</p> <p>21 A. So the question is?</p> <p>22 Q. Given that both intersections and street</p> <p>23 addresses describe fixed points in the world or fixed</p> <p>24 areas in the world, why is it more difficult to</p> <p>25 accurately locate intersections than it is to locate</p>
<p style="text-align: right;">Page 112</p> <p>1 W. Funderburk</p> <p>2 street addresses?</p> <p>3 A. Again, you have more coarse resolution</p> <p>4 information with a street address than you do with a</p> <p>5 hard address, a hard -- excuse me. You have more</p> <p>6 coarse information with street intersections than you</p> <p>7 do with hard address information. So again, we talked</p> <p>8 about digitizing the center lines of the roads of the</p> <p>9 intersections, not accounting for error on either side</p> <p>10 of that line. Not to mention the accuracy of that</p> <p>11 line in the map. So the roads may be off. The roads</p> <p>12 in a GIS system may be off by a few meters as well.</p> <p>13 That's that map accuracy thing that we referred back</p> <p>14 to. So if you have more information about an address,</p> <p>15 you can assign coordinates to it more accurately than</p> <p>16 you can with less information about someplace in</p> <p>17 space, geographic space.</p> <p>18 Q. The road location could also be inaccurate</p> <p>19 in dealing with a street address; right?</p> <p>20 A. You'll still deal with the map accuracy, if</p> <p>21 that's what you're asking, yes.</p> <p>22 Q. And so why -- so what's the difference</p> <p>23 between the street address and the intersection? It</p> <p>24 seems like both suffer from the same potential map</p> <p>25 accuracy issue.</p>	<p style="text-align: right;">Page 113</p> <p>1 W. Funderburk</p> <p>2 A. Again, one has more information about the</p> <p>3 location than the other does. If you have street</p> <p>4 intersections, say 123 MLK Street intersection</p> <p>5 intersecting with Highway 90 or A Street, that could</p> <p>6 be anywhere in the continental U.S. Or in the state</p> <p>7 of Mississippi there could be multiple MLK Streets</p> <p>8 intersecting with two streets or whatever arbitrary</p> <p>9 example I used, versus you having 123 Street, Long</p> <p>10 Beach, Mississippi, plus the ZIP Code -- that's,</p> <p>11 again, more information about that location than the</p> <p>12 intersection-level data.</p> <p>13 Q. But it seems to me like that would be an</p> <p>14 issue not of moving from coarse data to precise data</p> <p>15 in assigning like a point on a map but rather an issue</p> <p>16 of just getting like just a complete error. Like what</p> <p>17 you're identifying is maybe there's two intersections</p> <p>18 with the same name and the dataset doesn't give you</p> <p>19 information that you need, you know, to pick between</p> <p>20 two equally correct, potential choices. Is that</p> <p>21 right? Is that what you're saying about intersections</p> <p>22 throughout the continental U.S. and so forth?</p> <p>23 A. The question is what, now?</p> <p>24 Q. So you said intersection, say, 123 MLK</p> <p>25 intersection intersecting with Highway 90 or A street,</p>

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 2 that could be anywhere in the continental U.S. or in
 3 the state of Mississippi. But it seems to me like
 4 that also could be a problem with an intersection. If
 5 you have -- sorry -- that could also be a problem with
 6 a street address if you have 123 Main Street and no
 7 more information, that also could be anywhere within
 8 the continental U.S. or the state of Mississippi. So,
 9 I guess, how does that differentiate between street
 10 addresses and intersections? It seems like it's just
 11 identifying a potential data deficiency that could be
 12 present in both types of information.
 13 MR. NOBILE: Objection to form. You can
 14 answer.
 15 A. So again, my example involved 123 Street,
 16 city, ZIP Code. All right? Your example involved 123
 17 Street. Those are two different examples. Your
 18 example involved coarse level information like
 19 intersection data. Mine did not.
 20 Q. If you had data that an intersection was
 21 within Madison County, Mississippi, and there was only
 22 one location in Madison County, Mississippi, at which
 23 two roads with those names intersected, would that
 24 resolve that problem?
 25 A. What problem?

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 2 Q. The coarse data problem that you're
 3 identifying with respect to intersections.
 4 A. No, it would not resolve the problem because
 5 you still can't take coarse resolution information and
 6 assign fine, accurate and precise coordinates to them.
 7 Because, again, you're still talking -- say we're
 8 talking about our intersection; right? We didn't
 9 account for the error on either side of the street.
 10 So you would then in turn, just an arbitrary number,
 11 have a 25-meter circle that would encompass an
 12 intersection. So what point in that 25-meter area do
 13 you choose as your coordinate to represent that point?
 14 Is it a point here, here, here, here or in the very
 15 center? So those are all things that have to be
 16 defined and determined in the methodology, which is
 17 not listed in Dr. Ricchetti's report.
 18 Q. What you just said about getting a 25-meter
 19 circle or whatever, that would also be true of a
 20 street address; right?
 21 A. No.
 22 Q. Why not?
 23 A. More area in an intersection than on a
 24 street address. So even though that you digitized a
 25 road down the center of a lane from a street address,

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 2 your error in that sense is less than the error in the
 3 intersection, again, because you're taking more
 4 location information from the street address and
 5 you're dealing with lesser error than
 6 intersection-level information.
 7 I feel like I'm repeating myself. I'm
 8 sorry.
 9 MR. NOBILE: Isaac, you know, you can keep
 10 going. What are your thoughts about lunch? How are
 11 you thinking about handling it?
 12 MR. RETHY: Can we go off the record for a
 13 second?
 14 (A DISCUSSION WAS HELD OFF THE RECORD.)
 15 BY MR. RETHY:
 16 Q. So you said there's more area in an
 17 intersection than on a street address; is that right?
 18 A. Generally speaking, I would say that that's
 19 a fair statement. Unless the street address fell on
 20 an intersection.
 21 Q. I mean, if you have the street address for
 22 the United States Capitol Building, that's a street
 23 address associated with a large plot of land; right?
 24 A. Yes.
 25 Q. And that plot of land is probably larger

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 2 than most, if not all, intersections in Madison
 3 County; would you agree with that?
 4 A. Sure. I guess so. I mean, I've never been
 5 in the Capitol and haven't compared their respective
 6 areas to any tract in Madison County.
 7 Q. It's just an example. I'm, you know, trying
 8 to get you on some huge intersection that I've thought
 9 of. When you say a street -- so it's possible that
 10 you have a street address that defines a plot of land
 11 that's larger than an intersection?
 12 A. Yeah. Right there by the driveway. Is that
 13 what you're asking? You're asking -- just so I'm
 14 clear, are you asking if it's possible to have a plot
 15 of land larger than any plot in Madison County
 16 represented by a point address?
 17 Q. Yeah.
 18 A. Yeah. Based -- off the top of my head, I
 19 would say yes. But the point doesn't represent the
 20 parcel information. The plot of land would be
 21 represented by a polygon rather than the point. That
 22 would just represent an address. And again, if you
 23 wanted that point to fall out into some area of that
 24 polygon of that tract of land, you would have to make
 25 rules, perhaps manipulate the geocoding code in ArcGIS

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 2 to ensure that those points fell out consistently the
 3 same way throughout your data.
 4 Q. And the same is true of intersections?
 5 A. What do you mean the same is true?
 6 Q. An intersection -- also the complete area of
 7 the intersection would also be a polygon; right?
 8 A. No. With intersections and GIS you have
 9 them represented by polylines. Roads again, we have
 10 three types of data in GIS: points, lines, and
 11 polylines. Sometimes lines are referred to as
 12 polylines. So intersection-level information would be
 13 two lines in the GIS, where in actual reality you
 14 would have just an arbitrary number, two meters on
 15 either side of that line that would represent the
 16 entire road. Does that make sense?
 17 Q. Yeah. And for street addresses you would
 18 have just one line, a point on one line?
 19 A. Sorry?
 20 Q. So you said earlier that in trying to plot
 21 the coordinates associated with an intersection, you
 22 would have -- you mentioned a 25-meter circle that
 23 would encompass an intersection, and you asked the
 24 rhetorical question what point in that 25-meter area
 25 do you choose as your coordinate to represent that

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 2 point. Do you recall that?
 3 A. I do.
 4 Q. So when you're referring to the 25-meter
 5 circle that encompasses an intersection, what are you
 6 referring to?
 7 A. That was just an arbitrary value. I mean,
 8 it could be a square, if you wanted it to be. So I
 9 could draw you a picture.
 10 Q. Okay.
 11 MR. NOBILE: Do you just need a blank page?
 12 THE WITNESS: Yes, that would be great.
 13 MR. NOBILE: Should we just make this an
 14 exhibit?
 15 MR. RETHY: Yes.
 16 MR. NOBILE: That will be Exhibit 4?
 17 MR. RETHY: It will be Exhibit 4.
 18 (EXHIBIT 4, SKETCH, EXAMPLE OF INTERSECTION,
 19 WAS MARKED FOR IDENTIFICATION.)
 20 A. So the blue line will represent the GIS
 21 polylines that represent roads. And the red lines
 22 will be the portion of the roads that's not
 23 represented in the GIS but is in actual reality the
 24 real road.
 25 (PAUSE.)

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 2 A. And so -- do we have another color?
 3 Q. I've probably got a black.
 4 A. Perfect. Thank you. And so the area that
 5 we're talking about of this intersection is
 6 represented in black. In this case I've drawn a
 7 square. And we talked about a circle earlier that
 8 could be used as well. So the rhetorical question
 9 was: Given that amount of area, which point do you
 10 choose to represent that high accuracy, highly precise
 11 coordinate information within this polygon? Do you
 12 choose a point in this quadrant, this quadrant, this
 13 quadrant or this quadrant? Because you're already
 14 dealing with map accuracy error of the location of the
 15 roads. So you would have to assign a rule or develop
 16 a rule to incorporate into your methodology for each
 17 of these types of data points to be consistent
 18 throughout the dataset. Does that make sense?
 19 Q. That makes complete sense. It just seems to
 20 me the same issue exists with respect to a street
 21 address.
 22 A. Okay.
 23 Q. And so if you could draw --
 24 A. Yeah. Let me take care of that.
 25 Q. -- a street address as well.

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 2 A. I'll use the other side.
 3 MR. RETHY: Can we have another paper?
 4 MR. NOBILE: This would be Exhibit 5.
 5 (EXHIBIT 5, SKETCH, EXAMPLE OF A STREET
 6 ADDRESS, WAS MARKED FOR IDENTIFICATION.)
 7 A. So for consistency I'll use our blue pen to
 8 represent the polyline of a road in a GIS. And the
 9 red color again is representing the actual physical
 10 road that's not represented in a GIS. Because it's
 11 more like a belt, a large belt that a giant would
 12 wear. So here you've got a driveway going to an
 13 address of a parcel. Let's just say this is a home
 14 with hard address. (Marking.)
 15 So here hypothetically, assuming that the
 16 point fell out directly on this line, if it was
 17 possible, your encompassed area would be smaller than
 18 the two roads intersecting. Does that make sense? So
 19 even then you still have -- sorry. I didn't mean to
 20 interrupt you.
 21 Q. If you're putting -- if you're setting up
 22 this circle or square based on the width of the
 23 driveway, then --
 24 A. So in this case we're on the road; right?
 25 So I want to try to be consistent with this example.

<p style="text-align: right;">Page 122</p> <p>1 W. Funderburk</p> <p>2 So in this case you're dealing with one road versus</p> <p>3 the area of two roads that intersect. So here you're</p> <p>4 essentially -- you have double the amount of area</p> <p>5 versus this example. Because you've got -- let's just</p> <p>6 say their radius is -- let's go something easy -- ten</p> <p>7 meters; right? You've got a ten-meter side here,</p> <p>8 ten-meter side here, ten-meter side here. We know</p> <p>9 length times width, that would be 100 square meters;</p> <p>10 right? Versus you've got one ten-meter-side here.</p> <p>11 You're not interested in any of this information</p> <p>12 because it's not intersecting with anything.</p> <p>13 In both cases, though, they have their own</p> <p>14 issues that you would develop rules and assignments</p> <p>15 for consistency and reliability throughout the entire</p> <p>16 dataset of hard addresses versus intersection-level</p> <p>17 information.</p> <p>18 I hope I did that justice in a quick and</p> <p>19 dirty example.</p> <p>20 I'm going to write "not to scale."</p> <p>21 (Marking.)</p> <p>22 MR. RETHY: Okay. Let's break for lunch.</p> <p>23 MR. NOBILE: It's 12:45. Can we meet back</p> <p>24 at 1:30?</p> <p>25 MR. RETHY: Sure.</p>	<p style="text-align: right;">Page 123</p> <p>1 W. Funderburk</p> <p>2 (LUNCH RECESS FROM 12:47 P.M.</p> <p>3 TO 1:36 P.M.)</p> <p>4 BY MR. RETHY:</p> <p>5 Q. Good afternoon. You're still under oath; is</p> <p>6 that right?</p> <p>7 A. Yes, sir.</p> <p>8 Q. So let's go to Exhibit 4 to your report.</p> <p>9 Are you reading the corresponding subparagraph in 48?</p> <p>10 A. I am, yes, sir.</p> <p>11 Q. Which would be sub (d)?</p> <p>12 A. Sub (d).</p> <p>13 Q. Okay. Great. This states: "Exhibit 4</p> <p>14 shows roadblock locations on Highway 43 and near an</p> <p>15 entrance and exit ramp for the Natchez Trace. This</p> <p>16 exhibit shows Dr. Ricchetti's locations numbers 14 and</p> <p>17 203. Both of those locations are plotted in the wrong</p> <p>18 spot. The proper location for these roadblocks are</p> <p>19 shown with a blue X. Roadblocks at this location</p> <p>20 actually cover two areas at this location, which are</p> <p>21 marked."</p> <p>22 So let's go to Exhibit 4.</p> <p>23 MR. NOBILE: Just for the record, Exhibit 4</p> <p>24 to the report?</p> <p>25 Q. Exhibit 4 to your report. So it says in</p>
<p style="text-align: right;">Page 124</p> <p>1 W. Funderburk</p> <p>2 48(d) that the proper location for these roadblocks is</p> <p>3 shown with a blue X. Can you locate a blue X on this</p> <p>4 page?</p> <p>5 A. No, sir. Maybe that was a typo and I meant</p> <p>6 blue box. I apologize on that one. That's my</p> <p>7 mistake.</p> <p>8 Q. And did you mark these two blue boxes?</p> <p>9 A. This was marked by Deputy Thompson as ground</p> <p>10 truth validation during our interview session.</p> <p>11 Q. And so the basis for your statement that the</p> <p>12 locations are plotted in the wrong spot is Deputy</p> <p>13 Thompson's ground truth validation?</p> <p>14 A. Yes, sir.</p> <p>15 Q. If you look at your appendix D -- actually</p> <p>16 we can deal with that later. Hold off on appendix D</p> <p>17 for the moment.</p> <p>18 Instead go to 48 sub (e). 48 sub (e) refers</p> <p>19 to Exhibit 5. And is this an exhibit that you</p> <p>20 prepared?</p> <p>21 A. Yes, sir, it is. This is a map that I made.</p> <p>22 Q. Can you describe what you did to make this</p> <p>23 map?</p> <p>24 A. So that's a little broad. But here, since</p> <p>25 it's tract 309, we have the shaded area that's</p>	<p style="text-align: right;">Page 125</p> <p>1 W. Funderburk</p> <p>2 represented by Dr. Ricchetti's report as predominantly</p> <p>3 black, whereas I found it predominantly not black.</p> <p>4 And what we see are two roadblock locations, number</p> <p>5 344 and 51, which are both on Yandell Road, but yet</p> <p>6 they're assigned to different census tracts. So this</p> <p>7 again goes into the fact that there's no explanation</p> <p>8 of how the, quote, unquote, assignment of a census</p> <p>9 tract or points to a census tract was done.</p> <p>10 Q. So you said that census tract 309 was</p> <p>11 represented by Dr. Ricchetti's report as predominantly</p> <p>12 black, "whereas I found it predominantly not black"?</p> <p>13 A. According to the population census data,</p> <p>14 yes.</p> <p>15 Q. Is that a finding that's reflected anywhere</p> <p>16 in your report?</p> <p>17 A. That I found census tract 309 --</p> <p>18 Q. Correct.</p> <p>19 A. We could refer to the population map in the</p> <p>20 appendices for the findings of the census data. But</p> <p>21 this map importantly displays, again, the issues with</p> <p>22 the geocoding process and the assignment of the</p> <p>23 geocoded locations to the census tracts.</p> <p>24 I should also add that the general</p> <p>25 description that the census bureau provides is that</p>

<p style="text-align: right;">Page 126</p> <p>1 W. Funderburk</p> <p>2 census tract lines run down physical features such as</p> <p>3 roads. Now, given the fact that these roadblocks</p> <p>4 occurred in these areas and there's no explanation to</p> <p>5 how Dr. Ricchetti assigned or placed these roadblocks</p> <p>6 in either of the census tracts, so we're again</p> <p>7 displaying a complete lack of unreliable methodology</p> <p>8 from Dr. Ricchetti, a lack of explanation in his</p> <p>9 methodologies.</p> <p>10 Q. When you say that you found the census tract</p> <p>11 to be not predominantly black, what's your criteria</p> <p>12 for whether a census tract is predominantly black or</p> <p>13 not?</p> <p>14 A. If the population of black residents was</p> <p>15 greater than 50 percent, it was then coded by the</p> <p>16 legend scheme here in the maps in appendix -- excuse</p> <p>17 me -- Exhibit 12. So here we review -- if you want to</p> <p>18 review this map briefly, the legend states a</p> <p>19 percentage of Africa American and a hollow block is</p> <p>20 from zero to 50 percent, meaning it's less than 50</p> <p>21 percent African American. Whereas the subsequent</p> <p>22 yellow, orange, dark orange and brown are greater than</p> <p>23 50 percent, 65 to 75 percent, 75 to 85 percent, and</p> <p>24 the brown is greater than 85 percent.</p> <p>25 The shaded areas are also representative of</p>	<p style="text-align: right;">Page 127</p> <p>1 W. Funderburk</p> <p>2 what Dr. Ricchetti deemed as predominantly black</p> <p>3 areas. And the map again shows that -- pardon me for</p> <p>4 flipping while I'm talking. I'll try to stop that.</p> <p>5 The map shows that census tract 309 is</p> <p>6 predominantly black, and in this Exhibit 5 of my</p> <p>7 report I show that it's not necessarily predominantly</p> <p>8 black in this particular example.</p> <p>9 Again, we have no information about how</p> <p>10 either of these two points were assigned to each of</p> <p>11 their respective census tracts.</p> <p>12 Q. Did you at any point in your report identify</p> <p>13 census tracts that were or were not predominantly</p> <p>14 black other than this map which appears to do it on a</p> <p>15 smaller unit of measurement, the map you referred to?</p> <p>16 A. You mean this one right here? (Indicating.)</p> <p>17 Q. Yes.</p> <p>18 A. So you're asking me if there's more of these</p> <p>19 type of maps? (Indicating.)</p> <p>20 MR. NOBILE: Exhibit 12 to your report.</p> <p>21 Q. Is it just your recollection that census</p> <p>22 tract 309 is not predominantly black as you define it?</p> <p>23 A. No. I'm actually just speaking about this</p> <p>24 particular exhibit here and how 309 is a shaded area.</p> <p>25 And I found it as not predominantly black from the</p>
<p style="text-align: right;">Page 128</p> <p>1 W. Funderburk</p> <p>2 census block data in the way I constructed my</p> <p>3 population map.</p> <p>4 Q. I'm asking whether that finding with respect</p> <p>5 to census tract 309 is reflected anywhere in your</p> <p>6 report other than the map which only has the</p> <p>7 information at the block level, not the tract level.</p> <p>8 A. I don't know that it specifically states</p> <p>9 that I found this area to be predominantly black</p> <p>10 versus Dr. Ricchetti's finding. But we can interpret</p> <p>11 it from the map as that way here in Exhibit 5. But</p> <p>12 again, the important thing that this displays is the</p> <p>13 lack of consistent methodology of assigning geocoded</p> <p>14 locations to census tracts.</p> <p>15 Q. Let's move on to 48, subparagraph (f).</p> <p>16 A. You said (f)?</p> <p>17 Q. Yes. So in this subparagraph and</p> <p>18 corresponding exhibit to your report it discusses</p> <p>19 roadblocks on or near Yandell Road; is that right?</p> <p>20 MR. NOBILE: Are you back to paragraph (e)?</p> <p>21 subparagraph (e)?</p> <p>22 MR. RETHY: (f).</p> <p>23 THE WITNESS: We're back to (e).</p> <p>24 MR. NOBILE: No. I was wrong, he was right.</p> <p>25 MR. RETHY: (f) corresponds to Exhibit 6.</p>	<p style="text-align: right;">Page 129</p> <p>1 W. Funderburk</p> <p>2 THE WITNESS: Sorry. Apologies. What's the</p> <p>3 question?</p> <p>4 Q. I was just asking: This exhibit and the</p> <p>5 corresponding subparagraphs concern roadblocks on or</p> <p>6 near Yandell Road; is that right?</p> <p>7 A. Yes; that's correct.</p> <p>8 Q. And it states that these points should be</p> <p>9 located in front of Madison Crossing Elementary</p> <p>10 School; is that correct?</p> <p>11 A. Yes; that is correct.</p> <p>12 Q. And the final sentence says: "The proper</p> <p>13 location for these roadblocks has been marked with a</p> <p>14 blue X."</p> <p>15 And that X is on Exhibit 6; right?</p> <p>16 A. Correct.</p> <p>17 Q. And who marked that X?</p> <p>18 A. Deputy Thompson.</p> <p>19 Q. And so you're saying that these points</p> <p>20 should be located in front of Madison Crossing</p> <p>21 Elementary School, based on your interview with Deputy</p> <p>22 Thompson?</p> <p>23 A. Based on his ground truth validation, yes.</p> <p>24 Q. Was it based on any other information beyond</p> <p>25 your interview with Deputy Thompson?</p>

<p style="text-align: right;">Page 130</p> <p>1 W. Funderburk</p> <p>2 A. No.</p> <p>3 Q. Did you confirm that Deputy Thompson was</p> <p>4 present at all of the referenced roadblocks?</p> <p>5 A. I don't know that I asked him that specific</p> <p>6 question. That would be a question for him</p> <p>7 specifically.</p> <p>8 Q. Do you know how he came to -- do you know</p> <p>9 his basis for his conclusion that all the various</p> <p>10 roadblocks identified here were conducted in front of</p> <p>11 this school?</p> <p>12 MR. NOBILE: Objection, foundation.</p> <p>13 A. So I'm just a little unclear. You're asking</p> <p>14 me if Deputy Thompson explained any of the geocoded</p> <p>15 locations that he -- I'm sorry.</p> <p>16 Q. So the different geocoded locations</p> <p>17 correspond to different address or intersection</p> <p>18 information that can be found in appendix D to your</p> <p>19 report; correct?</p> <p>20 A. Correct.</p> <p>21 Q. And so those -- do you understand how the</p> <p>22 address or intersection information is generated</p> <p>23 initially, like generated in the CAD system?</p> <p>24 A. Somewhat. I have a rough understanding of</p> <p>25 how address information is stored in the CAD report.</p>	<p style="text-align: right;">Page 131</p> <p>1 W. Funderburk</p> <p>2 I don't know how it's necessarily generated.</p> <p>3 Q. So what's your -- I guess what's your</p> <p>4 understanding of how it's stored?</p> <p>5 A. I don't have any understanding of how it's</p> <p>6 stored.</p> <p>7 MR. NOBILE: Objection, foundation, form.</p> <p>8 Q. Sorry. So you said: I have a rough</p> <p>9 understanding of how address information is stored in</p> <p>10 the CAD report. I don't know how it's necessarily</p> <p>11 generated.</p> <p>12 A. I guess my -- so what's found in the</p> <p>13 compiled unique roadblock dataset is the extent of my</p> <p>14 knowledge of how the CAD operates.</p> <p>15 Q. Do you have --</p> <p>16 A. The main thing this image is depicting,</p> <p>17 again, is continued unreliable methodologies from the</p> <p>18 geocoding process of Dr. Ricchetti and his team and</p> <p>19 lack of explanation for any of it.</p> <p>20 Q. Do you understand what the acronym CAD</p> <p>21 means, stands for?</p> <p>22 A. Computer-aided dispatch.</p> <p>23 Q. Do you understand that it contains</p> <p>24 information recorded from when sheriff's deputies call</p> <p>25 in to dispatch?</p>
<p style="text-align: right;">Page 132</p> <p>1 W. Funderburk</p> <p>2 A. I believe so, yes. Yes, I understand that.</p> <p>3 Q. And so the intersection information that's</p> <p>4 being provided, intersection information for</p> <p>5 roadblocks, is being provided by deputies conducting</p> <p>6 the roadblocks to the dispatcher? Is that consistent</p> <p>7 with your understanding?</p> <p>8 A. That makes sense, yes.</p> <p>9 Q. And so I was asking earlier about the basis</p> <p>10 for Mr. Thompson's statement that all of these -- all</p> <p>11 of the roadblocks that are represented by the geocoded</p> <p>12 points were in fact conducted in front of this</p> <p>13 elementary school. Do you know whether he reviewed</p> <p>14 the CAD data himself or reviewed anything other than</p> <p>15 the maps you presented to him?</p> <p>16 A. I can't attest to what Deputy Thompson</p> <p>17 reviewed.</p> <p>18 MR. NOBILE: Pose an objection, foundation,</p> <p>19 form.</p> <p>20 Q. In the course of your interview, did he</p> <p>21 review or refer to any documentation beyond the maps</p> <p>22 that you projected?</p> <p>23 A. Not that I remember off the top of my head.</p> <p>24 But again, this displays the error in the geocoding</p> <p>25 coordinates as well as their assignment to their</p>	<p style="text-align: right;">Page 133</p> <p>1 W. Funderburk</p> <p>2 respective census tracts, how there was no method</p> <p>3 explained on how they did that. And the resultant</p> <p>4 output makes it seem like there were more roadblocks</p> <p>5 in one census tract versus another census tract when</p> <p>6 in all actuality the roadblocks were conducted here in</p> <p>7 front of Madison Crossing Elementary.</p> <p>8 Q. If you'll go to 48, subparagraph (g). So</p> <p>9 this states: "Exhibit 7 depicts a geocoded roadblock</p> <p>10 location slightly north of Canton, Mississippi. This</p> <p>11 roadblock location is usually set up in the actual</p> <p>12 intersection, but the geocoding does not reflect the</p> <p>13 actual location."</p> <p>14 And so when you say it's usually set up in</p> <p>15 the actual intersection, are you relaying information</p> <p>16 that Deputy Thompson gave to you?</p> <p>17 A. That is correct.</p> <p>18 Q. So you're not basing that on any other</p> <p>19 information other than your interview with Deputy</p> <p>20 Thompson?</p> <p>21 A. Other than his actual experience, boots on</p> <p>22 the ground, planning and developing the roadblock</p> <p>23 placements, that's who I'm relying on, is on ground</p> <p>24 truth information from him, yes.</p> <p>25 Q. And did he confirm for you that he was</p>

<p style="text-align: right;">Page 134</p> <p>1 W. Funderburk</p> <p>2 present at every roadblock conducted at this location?</p> <p>3 A. Again, I didn't ask that specific question</p> <p>4 of him. That would be a question for him</p> <p>5 specifically.</p> <p>6 Q. And you said that the roadblock location is</p> <p>7 usually set up in the actual intersection. Does that</p> <p>8 mean that sometimes it's not set up in the actual</p> <p>9 intersection?</p> <p>10 A. You know, I don't know where all the</p> <p>11 roadblocks are at, and I believe that this is one of</p> <p>12 the few times that Deputy Thompson said that they set</p> <p>13 up roadblocks in an actual intersection. And this map</p> <p>14 is depicting that, you know, even when it is an actual</p> <p>15 intersection information, that it's still incorrect.</p> <p>16 Q. Well, I'm focusing on the use of -- we said</p> <p>17 "usually" and whether that has any particular meaning</p> <p>18 to you or not.</p> <p>19 A. Okay. "Usually" meaning like a certain</p> <p>20 percentage more of the time than less?</p> <p>21 Q. Right.</p> <p>22 A. What would that percentage be?</p> <p>23 Q. Do you know?</p> <p>24 A. I don't know.</p> <p>25 Q. So you said "usually" just because that's</p>	<p style="text-align: right;">Page 135</p> <p>1 W. Funderburk</p> <p>2 what Deputy Thompson said to you?</p> <p>3 A. Correct.</p> <p>4 Q. And the next sentence: "Here</p> <p>5 Dr. Ricchetti's coordinates do not even show that we</p> <p>6 are in the actual middle of the intersection when a</p> <p>7 roadblock is actually there."</p> <p>8 When it says "we," who is "we" there?</p> <p>9 A. The collaborative "we" during the interview</p> <p>10 that I conducted.</p> <p>11 Q. But you never actually went to this location</p> <p>12 when a roadblock was being conducted; is that right?</p> <p>13 A. That's correct. Can't go back in time.</p> <p>14 Q. So go to 48, subparagraph (h). "Exhibit 8</p> <p>15 shows point number 77. In reviewing these, I see that</p> <p>16 this has a cleaned address as 'Lake Harbor Drive and</p> <p>17 Rankin, Madison County, Mississippi.'"</p> <p>18 Going to 8, I'd just like to understand</p> <p>19 better when you say "in reviewing these, I see that</p> <p>20 this has a cleaned address." What does the "these"</p> <p>21 refer to?</p> <p>22 A. These point data. You know, and this</p> <p>23 Exhibit 8 is displaying, again, one of the underlying</p> <p>24 issues of geocoding, this type of information. It's</p> <p>25 my understanding that this point would actually be on</p>
<p style="text-align: right;">Page 136</p> <p>1 W. Funderburk</p> <p>2 the border of Rankin County, but it's placed several</p> <p>3 miles from the actual position of where it should</p> <p>4 occur. And I believe, since we're going to get into</p> <p>5 it, all of these had match scores of greater than 90.</p> <p>6 Q. So the next sentence in subparagraph (h)</p> <p>7 says: "According to the MCSD, the text of the</p> <p>8 location information from the records indicates this</p> <p>9 location is near the reservoir, which is shown on</p> <p>10 Exhibit Numbers 1 and 2 above."</p> <p>11 So when you say "according to the MCSD," do</p> <p>12 you mean Deputy Thompson or do you mean others at the</p> <p>13 MCSD as well?</p> <p>14 A. Deputy Thompson.</p> <p>15 Q. And then you say: "the text of the location</p> <p>16 information from the records."</p> <p>17 Could you specify what information that is?</p> <p>18 A. Correct. So this box in Exhibit 8 is</p> <p>19 constructed from an identify tool where you can click</p> <p>20 the point and it shows its subsequent attribute data,</p> <p>21 which would coincide with the road column data -- for</p> <p>22 example, a spreadsheet. And in this case, it shows</p> <p>23 the field, the point number, the shape, the</p> <p>24 attributes, being their X and Y attributes, their</p> <p>25 longitudinal and latitudinal attributes, the number of</p>	<p style="text-align: right;">Page 137</p> <p>1 W. Funderburk</p> <p>2 roadblocks and its respective geoid, which is the</p> <p>3 census tract information that it falls into.</p> <p>4 Q. So what's the information that indicates</p> <p>5 that the location is near the reservoir?</p> <p>6 A. Ground truth testimony, ground truth</p> <p>7 validation from Deputy Thompson.</p> <p>8 Q. So when you say "the text of the location</p> <p>9 information," how did that play into his ground truth</p> <p>10 validation in this instance?</p> <p>11 A. The text of the location information, being</p> <p>12 the clean address, shows Lake Harbor Drive and Rankin,</p> <p>13 Madison County. Deputy Thompson's explanation was</p> <p>14 when they call that type of information in, it means</p> <p>15 that it's more toward the boarder of Rankin County</p> <p>16 rather than just on Lake Harbor Drive anywhere. And</p> <p>17 he could probably provide way more insight on how</p> <p>18 their CAD Information works and how they call in that</p> <p>19 information than I could.</p> <p>20 Q. So 48, subparagraph (i), is: "Exhibit 69</p> <p>21 (Figure 1) shows point number 244 and the text of the</p> <p>22 address information from our records." So when you</p> <p>23 say "our records," what does that refer to?</p> <p>24 A. Our records, meaning the collective "we,"</p> <p>25 Madison County Sheriff's Department and the records</p>

<p style="text-align: right;">Page 138</p> <p>1 W. Funderburk</p> <p>2 that we have from the compiled unique roadblock</p> <p>3 datasets provided by Dr. Ricchetti. And I'll again</p> <p>4 explain this image. Again, it's sort of depicting the</p> <p>5 error in geocoding and the major issues throughout the</p> <p>6 entire dataset of Dr. Ricchetti. So again, we have</p> <p>7 the identity tool, the identify tool -- excuse me --</p> <p>8 where we've identified point number 244. And based on</p> <p>9 its address information, it's my understanding that</p> <p>10 MRA is a private school located near point 188.</p> <p>11 Q. So what's the basis for that understanding</p> <p>12 that MRA is a private school at that location?</p> <p>13 A. It's from my ground truth interview from</p> <p>14 Deputy Thompson.</p> <p>15 Q. Not based on any other information, just the</p> <p>16 interview with Deputy Thompson?</p> <p>17 A. I didn't go and validate that there was a</p> <p>18 school there, no, sir. But it does show the</p> <p>19 misplacement, the 2.35 mile misplacement, at this</p> <p>20 point. And I performed that measurement using a</p> <p>21 measuring tool in ArcGIS. So the linear distance from</p> <p>22 244 to 188 is 2.35 miles. Again, this point,</p> <p>23 according to Dr. Ricchetti's deposition, had to have a</p> <p>24 match score of 90 or above, and it has a 2.35 mile</p> <p>25 error.</p>	<p style="text-align: right;">Page 139</p> <p>1 W. Funderburk</p> <p>2 Q. So going to Exhibit 9, there's a blue X</p> <p>3 drawn on there; right?</p> <p>4 A. Correct.</p> <p>5 Q. And who drew that?</p> <p>6 A. Deputy Thompson drew that blue X.</p> <p>7 Q. Were you present when Deputy Thompson drew</p> <p>8 this blue X?</p> <p>9 A. We printed out some images when we were</p> <p>10 doing the realtime investigation and interview where</p> <p>11 he drew these blue Xs.</p> <p>12 Q. So you were present when he drew them?</p> <p>13 A. Correct. You know, I go back to my example</p> <p>14 of the 30-meter pixel. So this is analogous to making</p> <p>15 up false information or creating false information</p> <p>16 from the resampling of coarse location information and</p> <p>17 creating fine geodetic coordinate information from it.</p> <p>18 Just like if you had a satellite image with 30-meter</p> <p>19 pixels and you attempted to reduce those pixels down</p> <p>20 to one meter, you would essentially be interpolating</p> <p>21 or making up information which would affect your</p> <p>22 subsequent analysis.</p> <p>23 Q. Look at 49(k).</p> <p>24 A. (a)?</p> <p>25 Q. (k). Sorry. 48(k), the last subparagraph</p>
<p style="text-align: right;">Page 140</p> <p>1 W. Funderburk</p> <p>2 of paragraph 48. And so 48(k) says: "Exhibit 11</p> <p>3 shows point number 12. Per Dr. Ricchetti's geocoded</p> <p>4 coordinates, this roadblock is located in the middle</p> <p>5 of a local wildlife refuge on a dead-end road. It has</p> <p>6 been noted on Exhibit 11 where the roadblock actually</p> <p>7 would be on Highway 43."</p> <p>8 So the notation refers to the blue X we see</p> <p>9 on Exhibit 11. Is that right?</p> <p>10 A. Correct.</p> <p>11 Q. And who drew that blue X?</p> <p>12 A. Deputy Thompson.</p> <p>13 Q. And is the basis for your assertion that</p> <p>14 this is where the road -- let me check the language --</p> <p>15 that's where the roadblock would actually be at the</p> <p>16 blue X? The basis of your assertion is your interview</p> <p>17 with Deputy Thompson?</p> <p>18 A. That is correct.</p> <p>19 Q. And not any other information?</p> <p>20 A. That is correct. He did mention -- I</p> <p>21 remember him mentioning during this exercise stating</p> <p>22 that point number 12, the geocoded location from</p> <p>23 Dr. Ricchetti, is on a dead-end road and how they</p> <p>24 would never conduct a roadblock on a dead-end road in</p> <p>25 the middle of a wildlife refuge area, which sort of,</p>	<p style="text-align: right;">Page 141</p> <p>1 W. Funderburk</p> <p>2 again, points back to the inconsistencies and</p> <p>3 unreliability of the geocoding found in</p> <p>4 Dr. Ricchetti's datasets.</p> <p>5 Q. So were you asked, as part of your</p> <p>6 assignment in this matter, to create block level</p> <p>7 census maps of Madison County census tracts?</p> <p>8 A. Correct. I was.</p> <p>9 Q. Did you present any opinion regarding those</p> <p>10 maps in your report?</p> <p>11 A. I'm pretty objective about those. I didn't</p> <p>12 provide any opinion on census block map -- about</p> <p>13 anything. I just constructed them.</p> <p>14 Q. Did you work with Dr. Steward on these maps?</p> <p>15 A. No, sir, I didn't.</p> <p>16 Q. Did you ever speak to Dr. Steward regarding</p> <p>17 these maps?</p> <p>18 A. There may have been an email exchange where</p> <p>19 I sent the maps to the firm as a whole. But that was</p> <p>20 the extent of my interaction with Dr. Steward.</p> <p>21 Q. Your report discusses coordinate systems to</p> <p>22 some extent. Could you explain what a coordinate</p> <p>23 system is?</p> <p>24 A. It's a big one. So a coordinate system</p> <p>25 essentially -- I don't have a good definition for it</p>

<p style="text-align: right;">Page 142</p> <p>1 W. Funderburk</p> <p>2 off the top of my head. But I can explain to you what</p> <p>3 the usage of it is. For example, a type of coordinate</p> <p>4 system is one that we're all familiar, which is the</p> <p>5 Cartesian coordinate system; correct? And I believe</p> <p>6 my example in my report states the same.</p> <p>7 So where are you looking at the coordinate</p> <p>8 system information in the report so I can be</p> <p>9 consistent with you?</p> <p>10 Q. Page 15.</p> <p>11 A. And you're referring to paragraph --</p> <p>12 Q. I really wasn't referring to -- I said it's</p> <p>13 discussed in your report to some extent. You can see</p> <p>14 in paragraph 73, for instance, you say: "It's unclear</p> <p>15 what coordinate systems Dr. Ricchetti's analysis is</p> <p>16 using."</p> <p>17 So I just asked you what a -- what a</p> <p>18 coordinate system is?</p> <p>19 A. A coordinate system basically, without</p> <p>20 citing a definition, allows someone to calculate</p> <p>21 position information geometrically. So in my</p> <p>22 reference here, I do reference the Cartesian</p> <p>23 coordinate system versus a polar coordinate system.</p> <p>24 Now, these are both mathematical coordinate systems.</p> <p>25 In GIS we deal with a number of different types of</p>	<p style="text-align: right;">Page 143</p> <p>1 W. Funderburk</p> <p>2 coordinate systems because there are restrictions in</p> <p>3 some places. For example, state plane coordinate</p> <p>4 systems which are done in surveying can't be larger</p> <p>5 than 158 miles long, hence why Texas has five of them,</p> <p>6 because when you're doing that type of work you have</p> <p>7 to take into account measuring -- performing linear</p> <p>8 measurements on a curved surface such as on a larger</p> <p>9 scale curve. So the coordinate system in projecting</p> <p>10 and defining data is the most important thing in doing</p> <p>11 geographical analysis, and that being uniform</p> <p>12 throughout your geographic datasets. And</p> <p>13 Dr. Ricchetti's report does not define any of these.</p> <p>14 Q. Does the census bureau use a particular</p> <p>15 coordinate system?</p> <p>16 A. I don't know that answer off the top of my</p> <p>17 head. I'd have to refer to the census bureau.</p> <p>18 Q. And does ArcGIS use a particular coordinate</p> <p>19 system?</p> <p>20 A. Negative. There's many, many different</p> <p>21 types of coordinate systems that you can select and</p> <p>22 define in ArcGIS, both nationally, continentally,</p> <p>23 globally, depending on where you're working and what</p> <p>24 you need to do.</p> <p>25 The short of it is you have to be somewhat</p>
<p style="text-align: right;">Page 144</p> <p>1 W. Funderburk</p> <p>2 of an expert in that area to perform these type of</p> <p>3 geographic analyses. And if you don't define it, you</p> <p>4 can only guess at what they did. And that's a big</p> <p>5 issue.</p> <p>6 Q. Are you familiar with the coordinate system</p> <p>7 called WGS-84?</p> <p>8 A. Correct, I am.</p> <p>9 Q. Could you explain what that system is and</p> <p>10 what it's used for?</p> <p>11 A. There's two things WGS-84 is used for. One</p> <p>12 is anytime you get a GPS position or solution, it's</p> <p>13 determined through WGS-84 the way the satellites orbit</p> <p>14 around the earth is an ellipse. And WGS-84 is an</p> <p>15 ellipse as well. So it's a reference frame, both</p> <p>16 global reference frame as well as a local or global</p> <p>17 coordinate systems. So, for example, if you have a</p> <p>18 boat or a plane and you're tying into an inertial</p> <p>19 navigation system, you're going to be using satellite</p> <p>20 information and pulling off of WGS-84. Does that make</p> <p>21 sense?</p> <p>22 Q. Yes. Are you familiar with a coordinate</p> <p>23 system known as NAD-83?</p> <p>24 A. Yes, sir, I am.</p> <p>25 Q. And what's that coordinate system used for?</p>	<p style="text-align: right;">Page 145</p> <p>1 W. Funderburk</p> <p>2 A. So again, these coordinate systems are all</p> <p>3 used to compute positions geometrically. NAD-83 is an</p> <p>4 acronym that stands for North American Datum that was</p> <p>5 developed in 1983. So WGS-84, as you would surmise,</p> <p>6 was developed in 1984. One is a geocentric coordinate</p> <p>7 system, which means it's gravity based, which is</p> <p>8 NAD-83. One is a nongeocentric coordinate system</p> <p>9 which is a nongravity-based system, it's completely</p> <p>10 mathematically based.</p> <p>11 So NAD-83 is what we construct geoid models</p> <p>12 off of. And those are gravity-based models. And so</p> <p>13 three things go into computing your orthometric</p> <p>14 position. You have to have your WGS-84 satellite</p> <p>15 information, you have to have your NAD-83 horizontal</p> <p>16 information to compute an orthometric position.</p> <p>17 There's a simple formula that I don't want to get</p> <p>18 wrong that I could provide. It's basically the</p> <p>19 difference in the WGS-84 ellipsoid and the geoid</p> <p>20 equals -- so it's ellipsoid minus geoid equals your</p> <p>21 orthometric position.</p> <p>22 The reason that WGS-84 is mathematically</p> <p>23 based is because we can replicate it. And I should</p> <p>24 mention that both of those coordinate systems had</p> <p>25 different realizations throughout time. So when you</p>

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 2 realize a coordinate system, you update it based on
 3 new geodetic information.
 4 So when we launched these satellites into
 5 space, we started performing satellite geodesy where
 6 we could detect certain undulations in The
 7 gravitational field of the earth. So gravity behaves
 8 different over water than it does over rock. So the
 9 density of the median between a satellite and the
 10 center of mass of the earth affects its projected
 11 path. And so we can pick up on those from this WGS-84
 12 ellipsoid rotation that we have developed.
 13 And so there's been continued realizations
 14 over time. I want to say like we're on like the
 15 1600th realization of WGS-84 ellipsoid. And I can't
 16 even remember which one it is for the NAD-83
 17 coordinate system without referencing some texts.
 18 But again, these coordinate systems are so
 19 important in being able to repeat what someone does
 20 and validate what they do. And so if you work in
 21 different coordinate systems, the geometry between
 22 what I do and what another investigator does will be
 23 different. And you'll arrive at different answers.
 24 And so the main thing is repeatability or precision.
 25 Q. Forgive me if I ask the question in a way

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 2 that is kind of barbaric sounding based on your
 3 superior skill level on this. But if using
 4 information recorded -- that utilized the WGS-84
 5 system and then you're mapping them onto a map that is
 6 constructed using a NAD-83 system, would you encounter
 7 any kind of error in that process?
 8 A. Yeah. It's going to develop inherent
 9 topological errors if you're not consistent through
 10 your dataset. And I think that's in the report
 11 somewhere. I'll have to double check exactly where
 12 it's at.
 13 Q. Do you have a sense of the scale of those
 14 errors that would develop?
 15 A. Yeah. So, you know, for 95 percent of the
 16 population, the difference in those errors are not
 17 really detectable. So, you know what? To do a true
 18 error -- to give an accurate answer, I'd have to
 19 perform some sort of accuracy assessment and error
 20 analysis between the two different coordinate systems.
 21 So I believe I could give you a truthful answer on the
 22 error between the two.
 23 Q. Is there between the two more likely to be
 24 centimeters or a few meters? Or could you get errors
 25 that were miles or kilometers?

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 2 A. You know, without performing some sort of
 3 error analysis, I couldn't comfortably answer that.
 4 Or review it to a scientific document that has already
 5 done that type of analysis, which I know there is put
 6 out by the National Geodetic Survey. The difference
 7 is between the position information derived from
 8 WGS-84 and NAD-83.
 9 Q. You said earlier that for 95 percent of the
 10 population that errors wouldn't really be detectable.
 11 Can you explain what you mean there?
 12 A. I guess I meant for people that aren't
 13 conducting scientific investigations or surveying,
 14 nobody really worries about that stuff because it's
 15 such a deep narrow field. For example, I mean, have
 16 you ever heard of an ellipsoid before today or this
 17 case? You know. And that's just an example.
 18 Geography and geospatial industry is such a small,
 19 narrow, deep field. So I guess when I said 95 percent
 20 of the population would never really care or detect
 21 it, that's what I meant in the context of things.
 22 These type of issues are not particularly oftentimes
 23 addressed. And, you know, so we could possibly
 24 surmise in this case by Dr. Ricchetti, since he
 25 doesn't provide any information about what coordinate

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 2 systems he used.
 3 Q. Would it be fair to say that this scale of
 4 any difference or error between those two systems
 5 would be undetectable to 95 percent of the population?
 6 A. I don't think that's a fair statement.
 7 Q. Why not?
 8 A. 95 percent of the population is not going to
 9 be looking for the error in the differences between
 10 these two coordinate systems and derived positions
 11 from them. And I use 95 percent arbitrarily, as an
 12 arbitrary number.
 13 Q. Would you say you, yourself, have no sense
 14 of the scale of those errors and you would need to
 15 conduct further research to give an answer to that
 16 question?
 17 A. No. I've read the documentation on it
 18 before. I just can't recall those values off the top
 19 of my head.
 20 MR. RETHY: Let's take a break.
 21 MR. NOBILE: Sure.
 22 (A RECESS WAS TAKEN from 2:32 p.m.
 23 TO 2:46 P.M.)
 24 BY MR. RETHY:
 25 Q. How would you describe topological error?

<p style="text-align: right;">Page 150</p> <p>1 W. Funderburk</p> <p>2 A. Geometric error.</p> <p>3 Q. How would you describe geometric error not</p> <p>4 using the word "topological"?</p> <p>5 A. So if you've got different geometry segments</p> <p>6 and angles won't line up, I guess, to sort of try to</p> <p>7 distill it down.</p> <p>8 Q. Is that the issue -- before the break we</p> <p>9 were talking about the different coordinate systems</p> <p>10 and potential issues arising from using different</p> <p>11 coordinate systems. Is that the type of error that</p> <p>12 that creates?</p> <p>13 A. Yes, yes; correct.</p> <p>14 Q. So in 48 subparagraph (j), this subparagraph</p> <p>15 talks about the inherent topological error that comes</p> <p>16 with geocoding. And would you say that topological</p> <p>17 error is a separate -- separate type of error than an</p> <p>18 error that would be identified by, say, Deputy</p> <p>19 Thompson's ground truth validation?</p> <p>20 A. Could you restate that one more time so I'm</p> <p>21 clear on it?</p> <p>22 Q. So if Deputy Thompson provides -- identifies</p> <p>23 the location of a roadblock that differs from a</p> <p>24 geocode location, then if you decide to accept Deputy</p> <p>25 Thompson's identification of that location as the</p>	<p style="text-align: right;">Page 151</p> <p>1 W. Funderburk</p> <p>2 correct point, then you would sort of come to the</p> <p>3 corresponding conclusion that the geocoded location is</p> <p>4 incorrect; right?</p> <p>5 MR. NOBILE: Objection, form, compound. You</p> <p>6 can answer, assuming you understand.</p> <p>7 A. So can we break that question down into</p> <p>8 multiple parts, please, so I can accurately answer?</p> <p>9 Q. So in a number of these examples we went</p> <p>10 through you had stated that there were errors in the</p> <p>11 geocoding used by Dr. Ricchetti; right?</p> <p>12 A. Correct.</p> <p>13 Q. And a number of those errors, you identified</p> <p>14 them based on your ground truth validation interview</p> <p>15 with Deputy Thompson; correct?</p> <p>16 A. As well as linear measurements I performed</p> <p>17 myself.</p> <p>18 Q. Okay. Could you describe that?</p> <p>19 A. For example, we use a measuring tool in</p> <p>20 ArcGIS found in figure 1, also Exhibit 9. In the top</p> <p>21 left corner you see the measuring tool results. So I</p> <p>22 perform a linear measurement from point 244 to point</p> <p>23 188 with a resulting measurement of 2.35 miles apart.</p> <p>24 Q. And that 2.35 miles identifies the</p> <p>25 difference in the space between the location -- the</p>
<p style="text-align: right;">Page 152</p> <p>1 W. Funderburk</p> <p>2 geocoded location and the location identified by</p> <p>3 Deputy Thompson?</p> <p>4 A. The space between the actual physical</p> <p>5 location identified by Deputy Thompson and the</p> <p>6 geocoded location, point 244, as geocoded by</p> <p>7 Dr. Ricchetti and his team.</p> <p>8 Q. And it's your contention that that geocoded</p> <p>9 location of point 244 is incorrect based on the</p> <p>10 information you received from Deputy Thompson; is that</p> <p>11 right?</p> <p>12 A. The information from Deputy Thompson but</p> <p>13 also the address information provided in the identify</p> <p>14 table here.</p> <p>15 Q. What table was that?</p> <p>16 A. The identify table here in figure 1,</p> <p>17 Exhibit 9, in the cleaned address field.</p> <p>18 Q. How does that play into your determination</p> <p>19 that the information provided by Deputy Thompson is</p> <p>20 correct?</p> <p>21 A. Could you repeat the question one more time,</p> <p>22 please?</p> <p>23 Q. So how did you use the address information</p> <p>24 provided in the identify table in this instance?</p> <p>25 A. As reference information.</p>	<p style="text-align: right;">Page 153</p> <p>1 W. Funderburk</p> <p>2 Q. And what do you mean by that?</p> <p>3 A. Reference information?</p> <p>4 Q. Yeah.</p> <p>5 A. I just mean that I used it as reference</p> <p>6 information.</p> <p>7 Q. Meaning -- so we talked earlier about how</p> <p>8 the locations were identified based on your interview</p> <p>9 with Deputy Thompson. And then I'm trying to</p> <p>10 understand whether -- and then, you know, you said,</p> <p>11 well, yes, Deputy Thompson, but then also this</p> <p>12 identify table. And then I'm trying to understand</p> <p>13 what role that actually played because you mentioned</p> <p>14 it there.</p> <p>15 A. I see. I see. So MRA was identified by</p> <p>16 Deputy Thompson as being in the location here. The</p> <p>17 reference information provided in the address field is</p> <p>18 Old Canton Road and MRA, Madison County. It's my</p> <p>19 understanding that MRA is a private school located</p> <p>20 near point 188 and identified by a blue X by Deputy</p> <p>21 Thompson.</p> <p>22 Q. Did you identify any topological error of</p> <p>23 2.35 miles?</p> <p>24 MR. NOBILE: You're talking about this</p> <p>25 example specifically?</p>

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Q. So in 48, subparagraph (j), the last paragraph says: "The error in Dr. Ricchetti's analysis may...little as 3-10 meters, 50 to 100 meters, or 2.35 miles, as shown in Exhibit 9."

And because of this subparagraph that talks about topological error, I'm trying to understand whether that it's your contention that 2.35 miles reflects a topological error.

A. No. The 2.35 miles reflects the error in the geocoding process as in taking in intersection level only information and assigning very fine geodetic coordinate information to it. The topological error is a function of not defining or mismatching reference frame information.

Q. Did you review Dr. Ricchetti's statistical analysis?

A. Did I review it?

Q. Yeah.

A. I skimmed over it. I didn't review it in depth, though.

Q. Did you understand that analysis?

A. I mean I understand statistical regressions. I've used them before in my own research and publications. So I understand the regression

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analysis, yes.

Q. Earlier you mentioned the concept of classical measurement error. You said it wasn't a phrase you're familiar with; correct?

A. Not off the top of my head, no, sir.

Q. Do you have an understanding of how statistical analyses can address measurement errors in the datasets that are being analyzed?

A. Yeah.

Q. And what's your understanding of that?

MR. NOBILE: I want to make an objection because now you're asking for his statistical analysis or his interpretation of Dr. Ricchetti's statistical analysis. I don't want to say any more. I mean I just object to foundation, asking him to testify about something -- it sounds like you're approaching an area of inquiry that's beyond what he's been proffered for. But you can go ahead.

MR. RETHY: So look at page 17 of your report. The final words are Dr. Ricchetti's "statistical analysis is invalid as well." So I'm addressing that because that's something he's proffered for.

MR. NOBILE: If you've got something in his

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report that you want him to testify to --
BY MR. RETHY:

Q. So do you recall the question that was pending before all that?

A. No, sir.

Q. I'll just read it. I asked: "Do you have an understanding of how statistical analyses can address measurement errors in the datasets that are being analyzed?"

You responded: "Yeah."

Then I asked: "And what's your understanding of that?"

A. There's variability in all data. And you can compute variance, covariance and standard deviation in all areas of error.

Q. And did you analyze whether Dr. Ricchetti's analysis computed or incorporated any analysis of potential measurement errors in datasets?

A. I did not review any -- I'm sorry. What was the last part of the question?

Q. Whether Dr. Ricchetti's analysis incorporated any analysis of potential measurement errors.

A. I didn't review that portion, no, sir. I

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can't attest to his own analysis of his measurement error on his statistical analysis.

Q. And is it possible that the ground truth validation process you conducted which involved interviewing Deputy Thompson could yield a different location for a roadblock but nonetheless a location within the same census tract as the initial geocode location?

MR. NOBILE: Objection, form.

A. So could you repeat the question one more time, maybe break it into two parts, please?

Q. So is it possible that your ground truth validation process could yield a different location but a location nonetheless in the same census tract as that to which it was assigned in Dr. Ricchetti's analysis?

A. Is it possible that the ground truth validation technique provided by -- that I performed provided by Deputy Thompson could yield the same amount of error as Dr. Ricchetti's? Is that what you're asking me?

Q. No. Could yield a result that ended up being in the same census tract as Dr. Ricchetti's initial geocode location?

40 (Pages 154 to 157)

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A. I'd hate to speculate on that without looking at the datasets. So I'd have to do that before I gave an answer.

Q. So look at Exhibit 1 to your report. It's on page 36, page 36 of the header. So if you look at the blue X and then look -- and see there's a geocoded location, it's further on Harbor Drive slightly, sort of towards the other, towards Ramp Road. It's not one of the ones on Lake Harbor. It's on Harbor.

MR. NOBILE: Are you talking about point 159 maybe?

MR. RETHY: Yes, I am.

MR. NOBILE: The one that's furthest north, I think it looks like?

MR. RETHY: Furthest, whatever direction.

MR. NOBILE: Yeah.

A. There's a compass here. It is north. Point 159, yes, sir.

Q. And so the point 159 is one of Dr. Ricchetti's geocoded locations; correct?

A. This is correct. Yes, sir.

Q. And then the blue X is the ground truth location marked by Deputy Thompson; right?

A. That is correct.

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Q. And both of those are in the same census tract; is that right?

A. Let me -- you know, I can't really attest to where the X would fall in the census tract because it's a mark on paper, not a spatial data joined with another piece of spatial data.

MR. NOBILE: So you're asking, just to be clear, you're asking if point 159 and the blue X are in the same census tract?

MR. RETHY: Correct.

A. And so they appear to be in the same census tract from this image.

Q. And so in an analysis focused on assigning locations to census tracts, the difference for this specific point between that point and the X, that wouldn't impact the analysis; right?

MR. NOBILE: Objection.

A. The difference in location of point 159 and where the X is?

Q. Correct.

A. Well, if that was the only geocoded point, no. But in this case there's two geocoded points that should be a singular point where the X is. 159 and 18 are representative of where the blue X is whereas the

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geocoding process that Dr. Ricchetti performed split those roadblocks into two different areas. And now, they're not representative of one roadblock either. These are multiple roadblocks at this one location that have been split, it appears to be, across two different areas.

Let me look at point 18 real quick.

So in this case -- in this example point 18 falls out in census tract 301.07 as well as point 159. But that doesn't necessarily mean that that's going to be uniform across the entire dataset.

Q. Did you use a particular methodology in identifying this subset of geocoded data points that were going to be the subject of your analysis?

A. Pretty much randomly navigated to these points. You know, I hate to use the word "randomly chosen" because in science random is completely different than this exercise. So, again, these points were just randomly navigated to very quickly With Deputy Thompson.

Q. Right. But it wasn't random in like a statistical sense of choosing a random sample, like a statistically significant random sample dataset?

A. Correct. You're correct. Yes. This was

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not a random subset of this data. However, you know, given that all this -- the geocoding process was done in a batch, as a batch process, there's no reason to think or believe that these are isolated incidents from the rest of the dataset.

Q. But to actually determine that would require additional analysis of additional data points?

MR. NOBILE: Objection, form.

A. To determine what?

Q. To determine whether there were additional -- to determine whether additional -- there were in fact additional errors, errors as defined by the process you used, you would have to analyze additional data points?

A. Not necessarily. I don't need to analyze additional data points, again, because these were all done in one batch process. And, now, the number of roadblocks that occur in these few exhibits is approximately 12 percent of the total roadblocks in a compiled unique roadblock dataset. So if we were to sample it statistically, 10 percent of the population data would be represented here. And by population, I don't mean people. In stats there's a sample population that you take to represent a target

<p style="text-align: right;">Page 162</p> <p>1 W. Funderburk</p> <p>2 population. And in this case 10 percent of the entire</p> <p>3 amount of roadblocks locations is, in my opinion, more</p> <p>4 than enough. And we calculated 12 percent.</p> <p>5 Q. You didn't conduct your own analysis? You</p> <p>6 didn't geocode the data yourself using your own</p> <p>7 preferred methods in ArcGIS; is that right?</p> <p>8 A. That is correct. I did not geocode</p> <p>9 anything. I simply displayed Dr. Ricchetti's data by</p> <p>10 its X and Y attribute data via its coordinates,</p> <p>11 latitudinal and longitudinal coordinates.</p> <p>12 Q. So you never attempted anything of that</p> <p>13 nature with this data?</p> <p>14 A. Attempted to geocode it? Is that the</p> <p>15 question?</p> <p>16 Q. Correct.</p> <p>17 A. No, I did not geocode any of this data, no,</p> <p>18 sir.</p> <p>19 MR. RETHY: Go off the record for a second.</p> <p>20 (A RECESS WAS TAKEN FROM 3:15 P.M.</p> <p>21 TO 3:27 P.M.)</p> <p>22 BY MR. RETHY:</p> <p>23 Q. So the last paragraph of your report, on</p> <p>24 page 17 on the bottom, whether you look at the bottom</p> <p>25 or the top, it's 17. The last sentence states:</p>	<p style="text-align: right;">Page 163</p> <p>1 W. Funderburk</p> <p>2 "Given that the geographic analyses are the premise to</p> <p>3 the statistical argument, the statistical analyses is</p> <p>4 invalid as well."</p> <p>5 When you are offering that opinion that the</p> <p>6 statistical analyses are invalid, are you offering</p> <p>7 that as an expert in statistical analysis?</p> <p>8 A. No, sir, I'm not. I've had enough</p> <p>9 mathematics and taken mathematical logic courses.</p> <p>10 Given that the premise to any argument -- if the</p> <p>11 premise to the argument is invalid, thus the argument</p> <p>12 is invalid. That's classical logic as well as</p> <p>13 mathematical logic. And you take that when you take</p> <p>14 number theory course work.</p> <p>15 Q. But you didn't do any statistical analysis</p> <p>16 that would confirm or refute Dr. Ricchetti's</p> <p>17 statistical analysis?</p> <p>18 A. No, sir. I wasn't paid to do any</p> <p>19 statistical analysis here. Again, that's just</p> <p>20 classical mathematical logic.</p> <p>21 MR. RETHY: That's all I've got.</p> <p>22 EXAMINATION</p> <p>23 BY MR. NOBILE:</p> <p>24 Q. Okay. Just a few followup questions.</p> <p>25 Mr. Funderburk, can you go to Exhibit 12 of your</p>
<p style="text-align: right;">Page 164</p> <p>1 W. Funderburk</p> <p>2 report, which is the census block and census tract map</p> <p>3 for the whole county?</p> <p>4 A. Yes.</p> <p>5 Q. Earlier Mr. Rethy -- am I pronouncing that</p> <p>6 correctly?</p> <p>7 MR. RETHY: Yes.</p> <p>8 Q. -- Mr. Rethy asked you about one of your</p> <p>9 exhibits and you were discussing census tract 309.</p> <p>10 (Indicating.)</p> <p>11 A. Correct.</p> <p>12 Q. And I think during the course of your</p> <p>13 testimony you said something to the effect that maybe</p> <p>14 census tract 309 is predominantly white. Do you</p> <p>15 recall that?</p> <p>16 A. I do. And I may have misspoken on that. I</p> <p>17 think I was referring to specifically the exhibit.</p> <p>18 Q. Okay. But if you testified earlier that</p> <p>19 census tract 309 is predominantly white, if I told you</p> <p>20 that -- if I reminded you that your census tract map</p> <p>21 shows it's predominantly black, would you disagree</p> <p>22 with the map that you have here?</p> <p>23 A. No, I would not.</p> <p>24 Q. There's been a lot of testimony about</p> <p>25 roadblock and geocoding and the information contained</p>	<p style="text-align: right;">Page 165</p> <p>1 W. Funderburk</p> <p>2 in the CAD system; correct?</p> <p>3 A. Correct.</p> <p>4 Q. All right. Now, you reviewed -- you</p> <p>5 reviewed the unique -- excuse me -- the compiled</p> <p>6 unique roadblocks attached to appendix D; correct?</p> <p>7 A. Yes, sir; that's correct.</p> <p>8 Q. Is it your opinion that, based on that</p> <p>9 information, anyone could have assigned those</p> <p>10 locations reliably to census tracts?</p> <p>11 MR. RETHY: Object to form.</p> <p>12 Q. Based on the information provided in that</p> <p>13 list?</p> <p>14 A. No. Again, I reiterate that you cannot take</p> <p>15 coarse location information such as intersection-level</p> <p>16 data and accurately assign geocoded coordinates to it.</p> <p>17 Q. And you're basing that based on the</p> <p>18 addresses listed in that list; correct?</p> <p>19 MR. RETHY: Object to the form.</p> <p>20 A. Correct.</p> <p>21 Q. You testified earlier -- there was some</p> <p>22 testimony earlier regarding coordinate systems. Do</p> <p>23 you recall that?</p> <p>24 A. I do.</p> <p>25 Q. And do you recall Mr. Rethy asking you</p>

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1 W. Funderburk
 2 about -- do you remember two specific coordinate
 3 systems he asked you about?
 4 A. Yes. The NAD-83 and WGS-84.
 5 Q. Okay. And you talked at length about
 6 different coordinate systems; do you remember that?
 7 A. Yes, sir.
 8 Q. What data, if any, did Dr. Ricchetti provide
 9 in his production file showing coordinate systems?
 10 A. There was no information on coordinate
 11 systems in Dr. Ricchetti's file.
 12 Q. Did he produce any shape files?
 13 A. He produced the American Community Survey
 14 shape file. But that was it.
 15 Q. What is the American Community Survey shape
 16 file? Who is the American Community Survey?
 17 A. I believe they're the sort of -- they're the
 18 people that do population estimations between census
 19 population analysis.
 20 Q. Okay. And that's publicly available
 21 information?
 22 A. That's correct.
 23 Q. Dr. Ricchetti didn't create the ACS shape
 24 file that you're talking about?
 25 A. No, sir, he did not.

1 W. Funderburk
 2 Q. Are there any other shape files or any other
 3 GIS-based files contained in Dr. Ricchetti's
 4 production file?
 5 A. Not that I was able to find, no, sir.
 6 Q. All right. If it's subsequently shown that
 7 Dr. Ricchetti used one coordinate system for part of
 8 his analysis and you used a different coordinate
 9 system for part of your analysis, would that explain
 10 all of the error that you found in your review?
 11 A. No, it wouldn't explain the 2.35 mile error
 12 as well as many other associated errors on that scale.
 13 To my recollection, the major horizontal differences
 14 between WGS-84 and NAD-83 are about one to two
 15 millimeters. The differences come into their vertical
 16 components, not their horizontal.
 17 Q. Okay. But your report has got a variety of
 18 findings in there; correct?
 19 MR. RETHY: Object to form.
 20 A. Yes.
 21 Q. And would the usage of two different
 22 coordinate systems explain all the error that you
 23 found in your report?
 24 A. It would not explain all the error. And it
 25 does not change the fact that you cannot take coarse

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1 W. Funderburk
 2 location information and assign fine, precise geodetic
 3 coordinates to it.
 4 MR. NOBILE: No further questions.
 5 MR. RETHY: All right. We're done.
 6 (THE DEPOSITION OF WILLIAM FUNDERBURK
 7 WAS CONCLUDED AT 3:34 P.M.)

8
 9
 10 WILLIAM FUNDERBURK

11
 12 Subscribed and sworn to before me
 13 this ____ day of _____ 2018.

14
 15
 16 (Notary Public) My Commission Expires:

1 W. Funderburk
 2 CERTIFICATE

3 I do hereby certify that the foregoing
 4 proceedings were taken down by me and transcribed
 5 using computer-aided transcription and that the
 6 foregoing is a true and correct transcript of said
 7 proceedings.

8
 9
 10 I further certify that I am neither of
 11 counsel nor of kin to any of the parties, nor am I in
 12 anyway interested in the result of said cause.

13
 14 I further certify that I have earned the
 15 certifications awarded by the National Court Reporters
 16 Association of RPR,RMR,RDR,CRR,CRC,RSA and am duly
 17 licensed by the Alabama, Illinois, Louisiana and
 18 Mississippi Boards of Court Reporting as a Certified
 19 Court Reporter.

20 DATED: JUNE 25, 2018

21
 22 DEBRA AMOS ISBELL, CCR,RDR,CRR
 23 ALABAMA - ACCR #21 (expires 9/30/18)
 24 ILLINOIS - CSR #084.004798 (expires 5/31/19)
 25 LOUISIANA - CCR #2014003 (expires 12/31/18)
 MISSISSIPPI - CSR #1809 (expires 4/10/19)
 NCRA (expires 12/31/2018)

1 W. Funderburk
 2 I N D E X
 3 DEPOSITION OF WILLIAM FUNDERBURK, 6/20/2018
 4

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1 NAME OF CASE:
 2 DATE OF DEPOSITION:
 3 NAME OF WITNESS:
 4 Reason Codes:
 5 1. To clarify the record.
 6 2. To conform to the facts.
 7 3. To correct transcription errors.
 8 Page _____ Line _____ Reason _____
 9 From _____ to _____
 10 Page _____ Line _____ Reason _____
 11 From _____ to _____
 12 Page _____ Line _____ Reason _____
 13 From _____ to _____
 14 Page _____ Line _____ Reason _____
 15 From _____ to _____
 16 Page _____ Line _____ Reason _____
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**IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF MISSISSIPPI
JACKSON DIVISION**

LATOYA BROWN, et al.

PLAINTIFFS

v.

CIVIL ACTION NO. 3:17-cv-347 WHB LRA

MADISON COUNTY, MISSISSIPPI; et al.

DEFENDANTS

DECLARATION OF DEPUTY RYLON THOMPSON

I, Rylon Thompson, make the following declaration based on personal knowledge:

1. I am a Deputy with the Madison County Sheriff's Department ("MCSD") and in that capacity, I oversee the implementation of MCSD roadblock and checkpoint program. I previously submitted a declaration in these proceedings on May 8, 2018.

2. Geographer William Funderburk interviewed me prior to his May 8, 2018 report submitted in these proceedings.

3. During my three-hour interview, Mr. Funderburk and I reviewed high-resolutions images of Dr. Ricchetti's geocoded locations and Madison County roads. We met in a conference room at USM's Gulf Park Campus where he displayed ArcGIS with high-resolution imagery on a large LCD television.

4. During this interview I talked at length about MCSD criteria for where roadblocks could or could not be located. Many intersections or roads do not meet our criteria. Those that do are used repeatedly as part of MCSD's routine practice, which I know very well.

5. In my earlier declaration, I explained there are a limited number of options near each intersection or along each road that best meets our criteria for locating roadblocks. Those criteria, generally, are to ensure officer safety, motorist safety, sufficient visibility,

enough space for drivers to be pulled over, and to be in an area where our roadblock is effective. There only a few spots that meet these criteria. The locations that meet our criteria are well known by me and the other DUI officers. These locations are part of MCSD's routine practice for locating roadblocks.

6. If a roadblock is set up in an area or near an intersection, it is consistently and predominately located at the same location due to the criteria listed above.

7. I have firsthand knowledge about the locations identified in Exhibit Nos. 1-11 attached to Mr. Funderburk's report, which I previously swore to in my original declaration.

8. I have conducted roadblocks at all of those locations, and many of the roadblock locations at issue in those Exhibits are most certainly roadblocks that I set up. My earlier sworn declaration set forth my firsthand knowledge about those specific locations, which Mr. Funderburk and I discussed extensively during our interview.

I declare under penalty of perjury that the foregoing is true and correct. 28 U.S.C. §
1746.

July 30, 2018


Deputy Rylon Thompson